

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Review of Part 15 and other Parts of the)	ET Docket 01-278
Commission's Rules)	RM-9375
)	RM-10051
)	
Amendment of Parts 2 and 15 of the)	
Commission's Rules to Deregulate the Equipment)	ET Docket 95-19
Authorization Requirements for Digital Devices)	
)	
M/A-COM Private Radio Systems, Inc.)	
Petition for Declaratory Ruling)	
)	

**SECOND REPORT AND ORDER AND
MEMORANDUM OPINION AND ORDER**

Adopted: June 25, 2003

Released:

By the Commission:

I. INTRODUCTION

1. In this Second Report and Order and Memorandum Opinion and Order, we are updating certain regulations for unlicensed radio frequency devices contained in Parts 2, 15 and 18 of our rules. Specifically, we are: 1) changing certain emission levels in the restricted bands above 38.6 GHz; 2) eliminating the prohibition on data transmissions and making other changes to rules governing Part 15 remote control devices; 3) modifying the rules for radio frequency identification systems to allow for improved operation; 4) simplifying the labeling requirement for manufacturer self-authorized equipment; and 5) making other changes to update and correct our rules. Because of certain decisions in this Second Report and Order, we are granting a petition for reconsideration filed by the Information Technology Industry Council (ITI) in ET Docket No. 95-19 to the extent indicated herein and are granting a petition for declaratory ruling filed by M/A-COM Private Radio Systems, Inc to the extent indicated herein.¹

II. BACKGROUND

2. In recent years, there has been a significant increase in the proliferation of unlicensed radio frequency devices that are regulated under Part 15 of our rules (Part 15 devices). Such devices are increasingly relied upon for many everyday functions in consumers' lives. Examples of common Part 15 devices include cordless phones, computers, baby monitors, and garage door openers. The range of applications and technologies for these types of devices continues to evolve at a rapid pace. For example,

¹ See petition for reconsideration filed by the Information Technology Industry Council (ITI) in ET Docket No. 95-19 on September 3, 1997 and petition for declaratory ruling filed by M/A-COM Private Radio Systems, Inc. on May 23, 2001.

digital processing speeds of personal computers are above 2400 MHz as compared to only 25 MHz about ten years ago. Cordless telephones now operate at higher frequencies, with digital modulation techniques providing users with improved performance and additional service features. In addition, technological innovations are now being employed to develop new Part 15 equipment and systems for business and professional applications, e.g. high speed, high capacity wireless local area networks (LANs). The Part 15 rules have been highly successful in permitting the development of new types of unlicensed devices while protecting authorized users of the radio spectrum from harmful interference. Many millions of Part 15 devices operate at the current limits without any significant interference problems.

3. On October 15, 2001, the Commission adopted a *Notice of Proposed Rule Making and Order* that proposed a number of changes to Part 15 and other parts of the rules.² These proposals were based on recommendations contained within the *Biennial Regulatory Review 2000 Updated Staff Report*,³ two petitions for rule making concerning radio frequency identification systems,⁴ and other staff recommendations. We received 153 comments and 58 reply comments in response to the *Notice*.⁵ On July 12, 2002, the Commission adopted a *First Report and Order* in this proceeding that required radar detectors to comply with the Part 15 emission limits for unintentional radiators with regard to emissions in the 11.7-12.2 GHz band to protect very small aperture satellite terminals (VSATs) from interference.⁶ This Second Report and Order and Memorandum Opinion and Order addresses many of the issues raised in the *Notice* that were not addressed in the *First Report and Order*. We plan to address the issues of radio frequency identification systems in the 425-435 MHz band and further changes to the emission limits in the restricted band above 38.6 GHz other than those discussed herein at a later date.

III. DISCUSSION

A. Revisions to Part 15

1. Restricted frequency bands above 38.6 GHz

4. Specific frequency bands are designated as restricted bands in Part 15 to protect certain sensitive radio services from interference, such as those that protect safety-of-life or those that use very low received levels, such as satellite downlinks or radio astronomy.⁷ Only spurious emissions are permitted in restricted bands, and such emissions must comply with the limits in Section 15.209.⁸ The entire

² See *Notice of Proposed Rule Making and Order* in ET Docket No. 01-278, (“*Notice*”), 16 FCC Rcd 18205 (2001).

³ See *The 2000 Biennial Regulatory Review Report* and *Federal Communications Commission Biennial Regulatory Review 2000 Updated Staff Report* (“*Updated Staff Report*”), FCC 00-456, dated January 17, 2001.

⁴ See National Council for Information Technology Standardization Technical Committee B10 (NCITS B10) petition for rule making filed September 4, 1998, RM-9375 and SAVI Technology, Inc. (SAVI) petition for rule making filed November 22, 2000, RM 10051.

⁵ See Appendix B for a list of commenters.

⁶ See *First Report and Order* in ET Docket No. 01-278, 17 FCC Rcd 14063 (2002).

⁷ See 47 C.F.R. § 15.205.

⁸ Spurious emissions are those on a frequency or frequencies outside the necessary bandwidth for the transmission of information, the level of which may be reduced without affecting the transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions. See 47 C.F.R. §§ 2.1 and 15.209.

frequency range above 38.6 GHz is a restricted band, although there is an exception that permits transmitters to operate in the 46.7-46.9 GHz, 76-77 GHz and 57-64 GHz bands.⁹ At the time this frequency range above 38.6 GHz was designated as a restricted band, there was no requirement in our rules to make measurements above 40 GHz because of limitations in measurement technology. Designating the entire frequency range above 38.6 GHz as restricted, rather than restricting designated segments, was simply a matter of administrative convenience and had no impact on manufacturers because measurements were not required at those frequencies. However, due to advancements in measurement technology, the Commission now requires measurements above 40 GHz for some devices, so these devices must now comply with the restricted band limits.¹⁰

5. In the *Notice*, the Commission sought comment on the need for changes to the restricted bands above 38.6 GHz and the potential benefits to manufacturers of such changes.¹¹ This Commission stated its belief that it is not necessary to restrict the entire band above 38.6 GHz because only certain portions of the band contain sensitive radio services that require this protection, such as those that protect safety-of-life or those that use very low received levels, such as satellite downlinks or radio astronomy.¹² The Commission also stated in the *Notice* that restricting the entire band above 38.6 GHz makes compliance more difficult to achieve for certain devices because they must comply with tighter harmonic limits than would otherwise apply if the band were not restricted.¹³ For example, the limit on harmonic emissions from a transmitter operating in the 24.0-24.25 GHz band under Section 15.249 of the rules is 2500 $\mu\text{V/m}$ at 3 meters.¹⁴ However, because the harmonics from a device operating in this band fall in the designated restricted band above 38.6 GHz, they must actually comply with a tighter limit of 500 $\mu\text{V/m}$ at 3 meters.¹⁵ This conflict arose as a result of a 1995 rule change that required spurious emissions from transmitters operating above 10 GHz to be measured at frequencies above 40 GHz.¹⁶ Prior to that date, measurements were not required above 40 GHz for such transmitters, so there was effectively no limit on radiated emissions above 40 GHz.

⁹ See 47 C.F.R. § 15.205. The table in paragraph (a) of this section states that all frequencies above 38.6 GHz are designated as a restricted band. However, paragraph (d)(4) of this section exempts transmitters operating under 47 C.F.R. §§ 15.253 and 15.255, which permit operation in the 46.7-46.9 GHz, 76-77 GHz and 57-64 GHz bands, from complying with the restricted band requirements.

¹⁰ When the 40 GHz cutoff was established in 1989, the Commission considered that frequency to be the highest practicable with the state-of-the art in measurement techniques at that time. See *First Report and Order* in GEN Docket No. 87-389, 4 FCC Rcd 3493, 3510 (1989). This was due to limitations on the upper operating frequency range of measuring equipment such as spectrum analyzers, antennas and amplifiers then available. When the Commission established rules permitting operation above 40 GHz in 1995, it recognized that measurements were possible above that frequency with equipment available at that time and amended Part 15 to require measurements above that frequency for the first time. See *First Report and Order and Second Notice of Proposed Rule Making* in ET Docket No. 94-124, 11 FCC Rcd 4481, 4504 (1989).

¹¹ See *Notice* at p. 18208.

¹² See *Notice* at p. 18207.

¹³ See 47 C.F.R. §§ 15.245 and 15.249. Section 15.245 places a limit 25,000 $\mu\text{V/m}$ at 3 meters on the harmonic emissions from a field disturbance sensor operating in the 24.075-24.175 GHz band. Section 15.249 places a limit of 2,500 $\mu\text{V/m}$ at 3 meters on the harmonic emissions from a transmitter operating in the 24.0-24.25 GHz band.

¹⁴ See 47 C.F.R. § 15.249.

¹⁵ See 47 C.F.R. §§ 15.205 and 15.209.

¹⁶ See *Report and Order* in ET Docket No. 94-124, 11 FCC Rcd 4481 (1996). See also 47 C.F.R. §§ 15.33(a)(2) and (a)(3). For a transmitter operating at 24 GHz, radiated emission measurements are required up to 100 GHz.

6. Safety Warning System, L.C. (SWS), the Short Range Automotive Radar Frequency Allocation Group (SARA) and Cisco Systems, Inc. (Cisco) support modifying the restricted band above 38.6 GHz.¹⁷ SWS states that there is no need for a restricted band at the second and third harmonics of the 24 GHz band, and that the current restricted band bars socially valuable products at a reasonable price from the market.¹⁸ SARA states that the Commission should lift the blanket restricted status of frequencies above 38.6 GHz and maintain protection only for bands with sensitive services.¹⁹ It states that at a minimum, the Commission should lift the restriction at the third harmonic of 24 GHz, *i.e.* 72 GHz, because that is the most difficult harmonic to suppress and that lifting that restriction would not adversely affect any passive services.²⁰ SARA claims that complying with the restricted band harmonic limits can double the cost of a 24 GHz transmitter.²¹ The National Aeronautics and Space Administration (NASA) submitted a list of 13 bands that it believes should be designated as restricted because they are used for passive sensing.²²

7. We are eliminating the requirement that the second and third harmonics from field disturbance sensors operating under Section 15.245 in the 24.075-24.175 GHz band, specifically harmonics in the 48.15-48.35 GHz and 72.225-72.525 GHz bands, must comply with the restricted band limits in Section 15.209. We are also eliminating the requirement that the second and third harmonics from devices operating under Section 15.249 in the 24.0-24.25 GHz band, specifically harmonics in the 48.0-48.5 GHz and 72.0-72.75 GHz bands, must comply with the restricted band limits in Section 15.209. These changes will resolve the current discrepancy in our rules concerning the harmonic emission limits for transmitters in the 24 GHz band. It will permit second and third harmonic emission levels of 2500 $\mu\text{V/m}$ at 3 meters from devices operating in the 24.0-24.5 GHz band under the provisions of 15.249 of the rules, and 25,000 $\mu\text{V/m}$ at 3 meters from disturbance sensors operating in the 24.075-24.175 GHz band under Section 15.245 of the rules.²³ These changes will benefit manufacturers because equipment will no longer have to meet limits that are tighter than necessary to control interference. These changes will not result in interference to Federal Government operations because there are currently no such operations in the 48.0-48.5 GHz or 72.0-72.75 GHz bands that would be adversely affected by these changes. In addition, there are currently no non-government operations in these bands. We note that there is a pending proceeding that proposes to change from uplinks to downlinks the Fixed Satellite Service allocation in the 71-75.5 GHz band and the Mobile Satellite Service allocation in the 71-74 GHz band.²⁴ We do not expect that the

¹⁷ See SWS comments at 1, SARA comments at 7 and Cisco comments at 2.

¹⁸ See SWS comments at 2-4.

¹⁹ See SARA comments at 4.

²⁰ See SARA comments at 7.

²¹ See SARA comments at 6.

²² See NASA comments at 1. NASA requested that the following bands above 38.6 GHz be designated at restricted: 50.2-50.4 GHz, 52.6-59.3 GHz, 86-92 GHz, 100-102 GHz, 109.5-111.8 GHz, 114.25-122.25 GHz, 148.5-151.5 GHz, 164-167 GHz, 174.8-191.8 GHz, 200-209 GHz, 226-231.5 GHz, 235-238 GHz, and 250-252 GHz. According to NASA, passive sensors are low-noise receivers similar to radio astronomy receivers, and are used to study weather patterns, climatic conditions, global warming, soil moisture, ocean temperature and wind speed, ice thickness, and the sensing of various atmospheric gasses. NASA claims that passive sensors are very sensitive to any microwave energy in their measurement bandwidth.

²³ See 47 C.F.R. §§ 15.249 and 15.245.

²⁴ See *Notice of Proposed Rule Making* in WT Docket No. 02-146, 17 FCC Rcd 12182 (2002).
(continued....)

changes we are adopting would affect any future operations in the 72.0-72.75 GHz band, even if this band were reallocated for satellite downlinks, because the high propagation losses and directivity of signals at these frequencies would significantly attenuate unwanted signals at a satellite receive site. We believe that there may be additional bands above 38.6 GHz which need not be designated as restricted because they do not contain services that require protection. We are continuing our discussions with NTIA to determine which bands above 38.6 GHz should continue to be designated as restricted and we defer a decision on this matter to a later date.

2. Data Transmission by Remote Control Devices

8. Section 15.231 of the rules allows the operation of remote control devices in the 40.66-40.70 MHz band and at any frequency above 70 MHz, except in designated restricted bands.²⁵ There are two separate provisions for operation under this section. The first provision, in paragraph (a) of this rule section, contains field strength limits for devices that transmit control signals, such as those used with alarm systems, door openers and remote switches. A device operated under this paragraph must cease transmission within 5 seconds after being activated automatically or after a manually operated switch is released. Continuous transmissions such as voice and video are not permitted. Data transmissions are permitted only to identify specific transmitters in a system, but no additional data may be sent. For example, a device could transmit a warning when the pressure of a tire is low but could not transmit the actual pressure level, or could remotely activate a thermostat but not transmit the desired temperature setting information. The rule also prohibits periodic transmissions at regular predetermined intervals, although one transmission of not more than one second is permitted once per hour per transmitter in a system to verify the integrity of security transmitters. A device that is employed for radio control purposes during emergencies involving fire, security and safety of life may transmit continuously to signal an alarm. The second provision, in paragraph (e) of this section, allows any type of transmission, including data and transmissions at regular periodic intervals. However, the provisions of this paragraph specify lower field strength limits than paragraph (a). In addition, the provisions of this paragraph limit transmissions to no more than one second, with a silent period between transmissions of at least 30 times the duration of the transmission, but in no case less than 10 seconds. The field strength limits for remote control devices specified in paragraphs (a) and (e) are based on the average value of the measured emissions. For devices that use pulsed emissions, the field strength is determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 100 milliseconds.²⁶ In cases where the pulse train exceeds 100 milliseconds, the field strength is determined by averaging over the 100 millisecond interval that produces the maximum value.

9. In the *Notice*, the Commission proposed to allow data transmissions by remote control devices operating under Section 15.231(a) of the rules, stating that the prohibition on data transmissions appears to be unnecessarily constraining and can be an impediment to the development of new types of devices, and that removing this restriction would not result in an increased potential for harmful interference.²⁷ It also proposed to remove the prohibition on voice, video and continuous transmissions and on the radio control of toys, because data representing voice or video has no greater interference potential than any other type of data, so there is no need to expressly prohibit them.²⁸ The Commission sought comment on

(Continued from previous page)

²⁵ See 47 C.F.R. § 15.231.

²⁶ See 47 C.F.R. § 15.35(c).

²⁷ See *Notice* at p.18211.

²⁸ *Id.*

the potential benefits of such changes to manufacturers.²⁹ It also sought comment on whether allowing data transmissions would result in an increased proliferation of devices or in devices transmitting for a greater amount of time, and whether there is a need to modify the timing requirements in Section 15.231 to avoid interference to other radio services.³⁰

10. ADEMCO, Cisco, Enalasys, Interlogix, ITI, JCI, Lifeline, Linear and Mattel all support removing the restriction on data transmission by remote control devices.³¹ Enalasys submits that removing this restriction will allow manufacturers to make more flexible and imaginative low power remote control devices.³² JCI states that permitting data transmissions would eliminate confusion about distinguishing between data and recognition codes, which are actually a form of data.³³ ADEMCO believes that permitting data transmissions would enable new products such as comprehensive wireless displays. It also states that the proposed changes would provide for advanced user interfaces, better control capability, improvements in the installation process, and a higher level of security to residential and business premises.³⁴ Lifeline states that its emergency alert transmitters designed for use by persons living alone would be more useful if voice and data transmissions were permitted, because they would be able to transmit medical data such as blood pressure.³⁵ Lifeline, Linear, JCI and Mattel support permitting voice transmissions by remote control devices, stating that this change would make devices more useful.³⁶ JCI and Mattel support permitting video transmissions.³⁷ Mattel states that this change would permit devices such as video baby monitors to operate at 300 MHz. It also notes that the proposed elimination of the prohibition on radio control toys would allow for increased bandwidth and multiple receivers needed to permit racing of several remote control cars.³⁸ Mattel believes that harmful interference is unlikely from such applications because the devices would be battery operated with low radiated radio frequency power.³⁹ Ademco does not believe that the Commission should remove the restriction on radio control toys because predicted intensive and repeated use of radio control toys could interrupt security, safety and other vital applications of remote control devices.⁴⁰ Cisco and ITI state that permitting a limited data stream for remote control devices would not lead to an increase in interference.⁴¹ Cisco notes that the interference potential is a function of the field strength levels and transmission duration and not the type

²⁹ *Id.*.

³⁰ *Id.*

³¹ See ADEMCO comments at 2, Cisco comments at 5, Enalasys comments at 2, Interlogix comments at 2, ITI comments at 8-9, JCI comments at 2, Lifeline comments at 2, Linear comments at 4, and Mattel comments at 1.

³² See Enalasys comments at 2.

³³ See JCI comments at 2.

³⁴ See ADEMCO comments at 2.

³⁵ See Lifeline comments at 2.

³⁶ See Lifeline comments at 2, Linear comments at 4, JCI comments at 2 and Mattel comments at 1.

³⁷ See JCI comments at 2 and Mattel comments at 1.

³⁸ See Mattel comments at 1.

³⁹ See Mattel comments at 1.

⁴⁰ See Ademco reply comments at 4.

⁴¹ See ITI comments at 8-9.

of information being sent.⁴² The National Telecommunications and Information Administration (NTIA) expresses concern about the Commission's proposed changes. It states that under the proposed rules, systems using voice and data would proliferate, and that because the only timing restriction would be to turn off after five seconds, some devices could be transmitting virtually all the time. It believes that the increased transmission time of such devices as compared to devices that transmit short-duration control signals would increase the likelihood of interference to licensed services.⁴³

11. Several parties recommend rule changes beyond those proposed in the *Notice*. CEA requests that the Commission allow duty cycle averaging over a one second interval instead of the 100 millisecond interval currently specified in the rules, because this would allow for the longer transmissions necessary to complete the setup, synchronization, transmitter identification and sending of a string of data.⁴⁴ Enalasys wants the Commission to permit devices used only by trained operators to operate with 10 dB higher power than currently permitted.⁴⁵ JCI wants the Commission to reevaluate its policy of permitting more rapid duty cycles or continuous operation only during emergencies involving fire, security or safety of life. It states that the Commission should permit more rapid duty cycles to report on additional conditions that might endanger property, machinery or the operation of systems.⁴⁶ JCI believes that requiring transmissions to cease after 5 seconds is arbitrary, and believes the Commission should delegate authority to the Office of Engineering and Technology (OET) to waive this requirement at its discretion, although it did not suggest any specific standards that should be considered in granting waivers.⁴⁷ Interlogix wants the Commission to permit devices to operate with a total of two seconds of polling time per hour, with no limit on the number of individual transmissions, because it will allow more useful information to be sent, such as the time of entry/exit from a building or the identity of a person entering or leaving.⁴⁸ Interlogix also wants the five second transmission time permitted by the rules to be the total transmission time excluding the "off" times between pulses, because it claims that the rule was designed to allow five seconds of continuous transmission, so excluding the "off" times between pulses would allow the same transmission time that the rule originally intended. Interlogix also wants professional installers to be permitted to automatically initiate transmissions longer than five seconds during the set-up of equipment because sophisticated systems often require longer transmissions to initialize them.⁴⁹ Ademco supports the Interlogix proposal to allow a total transmission time of two seconds per hour for polling, but it disagrees with both Interlogix and JCI that the five second time limit for transmissions should be changed.⁵⁰ It states that this rule is effective in ensuring a quiet band and promotes interference-free operation of Part 15 devices.⁵¹ Ademco disagrees with CEA that the duty cycle

⁴² See Cisco comments at 5.

⁴³ See NTIA letter to Edmond J. Thomas dated October 15, 2002 at 3-4.

⁴⁴ See CEA comments at 2. Part 15 currently requires that a pulsed transmission be averaged over no greater than a 100 millisecond interval. See 47 C.F.R. § 15.35(c).

⁴⁵ See Enalasys comments at 2-3.

⁴⁶ See JCI comments at 5.

⁴⁷ *Id.*

⁴⁸ See Interlogix comments at 2-3.

⁴⁹ See Interlogix comments at 3-4. For example, a ten second transmission with a 50 percent duty cycle would actually be considered as a five second transmission.

⁵⁰ See Ademco reply comments at 2.

⁵¹ See Ademco reply comments at 2-3.

averaging time should be increased to one second, because it would be contrary to the short-burst principal underlying the shared use of spectrum by devices operating pursuant to the rules.⁵² It also disagrees with Enalasys that higher power should be permitted for devices under the control of trained operators because any type of high power operation is incompatible with existing Part 15 uses.⁵³

12. We find that the restriction on data transmissions by remote control devices in Section 15.231(a) should be removed. As noted by the commenting parties, this change will allow manufacturers to make more flexible, imaginative and useful remote control devices. It is not practical to prohibit all data transmissions as NTIA requested. Virtually all modern remote control devices transmit a string of bits, and bits representing identification codes are indistinguishable from bits representing information. Maintaining the prohibition on data transmission inhibits the development of improved devices that pose no significant risk of harmful interference. We note that the interference potential of a device is a function of the field strength and duration of the transmission, rather than the type of information being sent; and, we are not changing the field strength or transmission timing limits. We decline to remove the prohibition on voice, video and continuous transmissions and on the operation of radio control toys as the Commission proposed in the *Notice*. There are already a number of provisions in Part 15 of the rules that permit voice, video, radio control toys, and continuous transmissions in other frequency bands, so there is no need to establish additional provisions for them under Section 15.231(a).⁵⁴ On further review, allowing such operation would in fact significantly and unnecessarily expand the goal of the *Notice*, which was to allow manufacturers to develop devices that transmit identification codes, supplemented with the transmission of some additional data.⁵⁵ The net result of the changes we are adopting is that operation under Section 15.231(a) will continue to be limited to devices that transmit a control signal, but such devices will be permitted to transmit data with the control signal. They will have to meet the same field strength, timing and other operational limits that currently exist. We believe that these changes adequately address NTIA's concerns about harmful interference from devices transmitting continuously because the rules will continue to explicitly prohibit continuous transmissions. Furthermore, the transmission timing and other restrictions in Section 15.231(a), which limit operation to devices that transmit a control signal and prohibit voice, video and the radio control of toys, will preclude continuous data transmissions in any case. No changes are being made to Section 15.231(e) because data transmissions are already permitted under this section.

13. We decline to allow duty cycle averaging over a one second interval as requested by CEA, rather than over the 100 millisecond interval currently specified in the rules. The requested change effectively allows higher signal strength, which could result in increased interference potential of devices. The current requirement does not preclude devices from transmitting for more than 100 milliseconds as CEA implies; it simply specifies the time interval for determining the average field strength of a device that uses pulsed transmission. Allowing an average to be calculated over a longer time interval could result in a lower value that does not accurately reflect the interference potential because the average could include blanking intervals between signal bursts that would be excluded from an average calculated over a shorter time interval. We also decline to allow trained operators to use equipment which operates with a 10 dB higher power than currently permitted, as requested by Enalasys. Such equipment would have a higher potential for interference to other services, and it is unlikely that even a trained operator would have sufficient information to determine whether harmful interference would occur in a particular location.

⁵² See Ademco reply comments at 3.

⁵³ See Ademco reply comments at 3.

⁵⁴ See 47 C.F.R. §§ 15.225, 15.227, 15.235, 15.247 and 15.249.

⁵⁵ See *Notice* at p. 18210.

We decline to broaden the criteria under which more rapid duty cycles are permitted as requested by JCI, or to allow setup transmissions longer than 5 seconds as requested by Interlogix. JCI and Interlogix have not shown why the existing limits are inadequate for the situations it identified. Finally, we decline to change our requirement for a device to cease transmission within five seconds after being activated automatically or after release of a control that manually activates it, and we decline to specify the five second time as excluding the “off” time between pulses. This requirement to cease transmissions within five seconds prevents continuous transmissions which could result in interference to other devices.

14. As recommended by Interlogix and Ademco, we will permit remote control devices to transmit for a maximum of two seconds per hour, instead of the current one second, for polling the integrity of transmitters used in security or safety applications. The number of individual transmissions will not be limited, provided the total transmission time does not exceed two seconds per hour. This change will allow for increased reliability in alarm systems by permitting systems checks to be performed at more frequent intervals. Any increased interference potential as a result of this change is negligible because polling transmissions will still only be permitted for less than one tenth of one percent of the time.⁵⁶

3. Radio Frequency Identification Systems

15. Radio frequency identification (RFID) systems use radio signals to track and identify items such as shipping containers and merchandise in stores. A system typically consists of a tag mounted on the item to be identified, and a transmitter/receiver unit that interrogates the tag and receives identification data back from the tag. The tag may be a self-powered transmitter, or it may receive power from the interrogating transmitter. RFID systems can operate in a number of frequency bands under Part 15. Part 15 currently permits the operation of intentional radiators, including RFID systems, in the 13.553-13.567 MHz band at a field strength limit of 10,000 $\mu\text{V/m}$ at 3 meters.⁵⁷ Emissions outside this band must comply with the radiated emission limits in Section 15.209, which specifies a limit of 30 $\mu\text{V/m}$ at 30 meters for emissions in the 1.705-30 MHz band.

16. In the *Notice*, the Commission proposed to modify the Part 15 limits for operation in the 13.553-13.567 MHz band and the adjacent 13.110-13.553 MHz and 13.567-14.010 MHz bands, as requested by National Council for Information Technology Standardization Technical Committee B10 (NCITS B10), to allow the development of RFID tags capable of operating uniformly in the United States, Europe and Australia.⁵⁸ Specifically, the Commission proposed to increase the maximum field strength within the 13.553-13.567 MHz band from 10,000 $\mu\text{V/m}$ to 15,848 $\mu\text{V/m}$ at a distance of 30 meters, to increase the maximum field strength permitted in the 13.410-13.553 MHz and 13.567-13.710 MHz bands from 30 to 334 $\mu\text{V/m}$ at 30 meters, and to increase the maximum field strength permitted in the 13.110-13.410 MHz and 13.710-14.010 MHz bands from 30 to 106 $\mu\text{V/m}$ at 30 meters.⁵⁹ These are the limits developed by the European Telecommunications Standards Institute (ETSI) for low power devices operating in these bands. The Commission further proposed to allow devices operating in the 13.110-14.010 MHz band to

⁵⁶ Specifically, the percent of the time that a device could transmit would increase from 0.028% to 0.056%.

⁵⁷ See 47 C.F.R. § 15.225.

⁵⁸ See *Notice* at p. 18212. See also NCITS B10 *Petition for Rule Making to Amend Section 15.225 of the Commission's Rules*, filed September 10, 1998, RM-9375. In the *Notice*, we also proposed to allow RFID systems operating in the 425-435 MHz band to transmit data at the level permitted in Section 15.231(b) of the rules, with a transmission time of 120 seconds and at least a 10 second silent period between transmissions. See *Notice* at p. 18213. We will address this matter at a later date.

⁵⁹ *Id.*

place emissions other than spurious emissions into the 13.36-13.41 MHz restricted band because that band is used at only one radio astronomy site in Florida and NTIA has no objection to allowing emissions from RFID devices in this restricted band.⁶⁰ In addition, the Commission proposed to allow powered RFID tags and readers to be approved together and labeled with a single FCC identification number.⁶¹

17. CEA, Chester Piotrowski, DataBrokers, Inc. (DataBrokers), Gap, Inc., MagTek, Inc., Motorola, NCITS B10, Philips Semiconductor (Philips), the Telecommunications Industry Association (TIA), and Texas Instruments (TI) support the proposed changes, stating they will allow increased range for RFID tags, permit the development of new types of devices, and harmonize the United States regulations with those of other countries.⁶² TI states that this rule change would simplify the design and manufacturing of RFID products and allow lower costs due to worldwide commonality of standards.⁶³ Both TI and Philips state that the proposed changes would allow higher security, data transfer rates and read range performance in RFID applications.⁶⁴ HID Corporation believes the proposed emission limits are not likely to cause interference to other services and will benefit the public by permitting devices with better performance.⁶⁵ It believes that the 13.36-13.41 MHz band should be removed from the list of restricted bands to permit sidebands from devices at 13.553-13.567 MHz to fall in that frequency range.⁶⁶

18. Cubic Corporation (Cubic) states it does not support the proposed changes for RFID tags unless a quantitative analysis is provided to show that new systems will not interfere with existing RFID systems in the band.⁶⁷ It states that the petition was premised on the idea that RFID tags would not be self-powered, but new self-powered devices are being developed that will increase the noise floor in the band.⁶⁸ Both Cubic and Nickolaus E. Leggett state that Part 15 devices should not be permitted to operate in the 13.36-13.41 MHz radio astronomy band because that would make it unusable for radio astronomy.⁶⁹ TI responds that Cubic has not shown that operation of RFID tags under the proposed parameters would cause interference to other Part 15 RFID tags, and that the emissions from RFID tags would be too low to cause interference to radio astronomy.⁷⁰ NTIA states that it has no objection to

⁶⁰ *Id.* See also July 12, 2002 letter from NTIA to Mr. Edmond J. Thomas, Chief, Office of Engineering and Technology.

⁶¹ See Notice at p. 18213.

⁶² See CEA comments at 3, Chester Piotrowski comments at 1, DataBrokers comments at 1, Gap comments at 1, MagTek, Inc. comments at 1, Motorola comments at 2, NCITS B10 comments at 1, Philips comments at 1, TIA comments at 2-3, and TI comments at 1-2.

⁶³ See TI comments at 1-2.

⁶⁴ See TI comments at 2 and Philips comments at 1.

⁶⁵ See HID comments at 1.

⁶⁶ *Id.*

⁶⁷ See Cubic comments at 1.

⁶⁸ *Id.*

⁶⁹ See Cubic comments at 1 and Nickolaus E. Leggett comments at 1.

⁷⁰ See TI reply comments at 2-3.

operation of RFID devices in the 13.110-14.010 MHz band, which includes the 13.36-13.41 MHz restricted band, at the emission levels proposed in the *Notice*.⁷¹

19. We are adopting the changes proposed in the *Notice* to increase the maximum field strength permitted in the 13.553-13.567 MHz band from 10,000 to 15,848 $\mu\text{V}/\text{m}$ at 30 meters, to increase the maximum field strength permitted in the 13.410-13.553 MHz and 13.567-13.710 MHz bands from 30 to 334 $\mu\text{V}/\text{m}$ at 30 meters, and to increase the maximum field strength permitted in the 13.110-13.410 MHz and 13.710-14.010 MHz bands from 30 to 106 $\mu\text{V}/\text{m}$ at 30 meters. In addition, we will permit emissions other than spurious emissions in the restricted band at 13.36-13.41 MHz. These changes will allow for improved operation of RFID tags in the 13.56 MHz band without adverse consequences to other devices, and will allow for the development of RFID tags that can work in both the United States and other countries. As proposed in the *Notice*, we also will allow powered RFID tags to be approved either as part of a system with a tag reader under one FCC identification number, or under separate FCC identification numbers. Allowing powered tags and readers to be approved together will simplify the filing requirements in cases where the devices are always sold together, and permitting tags and readers to be approved separately will provide increased flexibility to manufacturers by permitting the sale of different combinations of tags and readers.

20. We disagree with Cubic that an analysis is required to show that new systems would not interfere with existing RFID systems in the band. Cubic has not provided information to indicate that a problem exists warranting scrutiny. We note that Part 15 devices have no interference protection from other Part 15 devices.⁷² Also, because the existing rules for the 13.553-13.567 MHz band place no restrictions on the types or lengths of transmissions, self-powered tags are already permitted.⁷³ The rule changes we are adopting simply provide for an increase in field strength within the 13.553-13.567 MHz band and adjacent bands. We disagree with Cubic and Nickolaus E. Leggett that emissions from RFID tags should not be permitted in the 13.36-13.41 MHz restricted band. Neither party has provided information beyond unsubstantiated allegations that there are any radio astronomy operations in this band in the United States that would receive interference from RFID tags. Radio astronomy operations in this band in the United States are performed at only a single site in Florida. Further, the proposal was coordinated with the Interdepartment Radio Advisory Committee (IRAC), which includes the National Science Foundation, which represents radio astronomy interests. No objections to the proposed changes were received from radio astronomy interests.

4. Declaration of Conformity (DoC) Labeling

21. Declaration of Conformity (DoC) is an equipment authorization procedure in which the manufacturer or other responsible party has the equipment tested for compliance at a laboratory accredited to make the required measurements.⁷⁴ If an accredited laboratory finds that the equipment

⁷¹ See NTIA comments at 2. See also July 12, 2002 letter from NTIA to Mr. Edmond J. Thomas, Chief, Office of Engineering and Technology.

⁷² See 47 C.F.R. § 15.5.

⁷³ See 47 C.F.R. § 15.225.

⁷⁴ The manufacturer or importer is normally the responsible party for equipment authorized under the DoC procedures. Retailers may enter into agreements with the manufacturer or importer to become the responsible party. If equipment is modified by a party other than the responsible party, the party performing the modification becomes responsible for the compliance of the equipment. See 47 C.F.R. § 2.909(c).

complies with the applicable rules, it may be marketed without an approval from the Commission.⁷⁵ Equipment authorized through the DoC procedure must be labeled as specified in Section 15.19 of the rules, which provides two variations of the DoC label.⁷⁶ One is for equipment tested for compliance as a complete unit, and the other is for personal computers assembled from components that were tested separately for compliance. Either variation of label must include the trade name, the equipment model number, the FCC logo, the phrase “For Home or Office Use”, and a statement as to whether the complete device was tested for compliance or whether it was assembled from tested components. A compliance information statement must be supplied with equipment authorized through the DoC procedure, and this statement must include the name and model number of the product, a statement that the equipment complies with Part 15 of the rules, and the name, address and telephone number of the party responsible for the compliance of the product.⁷⁷ The compliance information statement supplied with equipment that was assembled from tested components must also identify the components used in the assembly.⁷⁸

22. In the *Notice*, the Commission proposed several changes to simplify the labeling required on products authorized through the DoC procedure. It proposed to delete the requirement that the phrase “For Home or Office Use” appear on the label as unnecessary and because including it requires the use of a larger label, which could become increasingly burdensome as advancements in technology result in smaller and smaller equipment.⁷⁹ The Commission also proposed to eliminate the statement on the label that the complete device was tested for compliance in order to further streamline the label.⁸⁰ However, it proposed to continue requiring that personal computers assembled from tested components contain a statement to that effect on their label because that information could assist us in determining the source of compliance problems when investigating cases of non-compliant equipment.⁸¹ The Commission sought comment on whether electronic labeling should be permitted for devices authorized under the DoC procedure, and if so, the appropriate method for electronically labeling equipment such as computers that are authorized through the DoC procedure.⁸²

23. CEA, Cisco, IBM, ITI, Motorola, Shure, Uniden and TIA all support the proposed simplification of the DoC labeling requirements, stating that the changes will allow smaller labels on equipment.⁸³ CEA, Cisco and Motorola agree that the phrase “For Home or Office Use” is not necessary on the label because Class B devices can be used anywhere.⁸⁴ Cisco agrees that the label on a computer assembled from tested components should state that it was assembled from tested components to assist the Commission in determining the source of, and resolving interference that may originate with such

⁷⁵ See 47 C.F.R. § 2.1071, *et seq.*

⁷⁶ See 47 C.F.R. § 15.19.

⁷⁷ See 47 C.F.R. § 2.1077.

⁷⁸ See 47 C.F.R. § 2.1077(b).

⁷⁹ See *Notice* at p. 18215.

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ See CEA comments at 4, Cisco comments at 6-7, IBM comments at 1, ITI comments at 2, Motorola comments at 2-3, Shure comments at 3, Uniden comments at 4, and TIA comments at 4.

⁸⁴ See CEA comments at 4, Cisco comments at 6 and Motorola comments at 2-3.

devices.⁸⁵ IBM requests that we require the statement in Section 15.19(a)(3) to appear only in the instruction manual rather than on the product to save space, and that the product be labeled with the phrase “Class A” or “Class B” in place of the statement.⁸⁶ Shure requests that we allow manufacturers to use externally accessible areas such as battery compartments for labeling because it is undesirable for labeling on wireless microphones to show up on camera, and because the battery compartment offers protection from wear and perspiration and will be seen when the user replaces batteries.⁸⁷ IBM and ITI request that we codify the accepted practice of allowing the trade name and model number to be placed in locations other than the compliance label to avoid using critical space for redundant information.⁸⁸ CEA requests that we provide sufficient lead time for manufacturers to plan and implement any labeling changes.⁸⁹

24. IBM, ITI and TIA support permitting electronic labeling for equipment authorized under the DoC procedure in order to reduce costs and allow easy re-labeling of equipment.⁹⁰ ITI and TIA believe that electronic labeling should be permitted for equipment authorized under all parts of the rules, as an alternative to physical labeling, and IBM believes that electronic labeling should be permitted to display the FCC identification number of transmitters that are installed in laptops by selecting the proper pull-down menu, similar to what is permitted for software defined radios.⁹¹

25. As proposed, we are eliminating the requirement for the DoC label to contain the phrase “For Home or Office Use” as unnecessary, because the DoC procedure is applicable to Class B digital devices and other types of equipment that can be used anywhere. This change will simplify the labeling requirements and permit smaller labels on equipment. We are also eliminating as unnecessary the requirement for the DoC label to state if the complete device was tested for compliance. We will continue to require the DoC label on computers assembled from tested components to state that they were assembled from tested components, because that information could assist the Commission in determining the source of compliance problems with such devices. It will be presumed that the complete device was tested for compliance unless the label states otherwise.⁹² We believe that the vast majority of equipment subject to DoC is tested as a complete unit rather than assembled from tested components.⁹³ Therefore,

⁸⁵ See Cisco comments at 6.

⁸⁶ See IBM comments at 2. Section 15.19(a)(3) requires that Part 15 devices other than stand-alone cable input selector switches and receivers associated with a licensed radio service must be labeled with the following statement, “This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

⁸⁷ See Shure comments at 2-3.

⁸⁸ See IBM comments at 1 and ITI comments at 2.

⁸⁹ See CEA comments at 4-5.

⁹⁰ See IBM comments at 2, ITI comments at 3 and TIA comments at 4.

⁹¹ *Id.* Software defined radios may be equipped with a means such as a user display screen to display the FCC identification number normally contained on the nameplate or label. See 47 C.F.R. § 2.925(e).

⁹² Manufacturers will continue to be required to supply a compliance information statement with the device stating that it complies with Part 15 of the rules. See 47 C.F.R. § 2.1077(a)(2).

⁹³ DoC was originally applicable only to personal computers and peripherals. Such devices can be tested as a complete system. The rules also contain provisions to allow personal computers to be assembled from boards and power supplies that had been tested for compliance without having to re-test the entire device for compliance after (continued....)

this action will allow labels to be further streamlined on the majority of devices subject to this procedure. Because this change is deregulatory in nature and requires no new information to be added to labels, no transition period is necessary. Responsible parties may continue to use labels that were designed to meet the old requirements as long as they wish and may change to the simplified labels at their convenience.

26. We decline to limit the appearance of the statement required by Section 15.19(a)(3) to the instruction manual, as requested by IBM. This statement advises users that operation of the equipment is subject to the conditions that it not cause harmful interference and that it must accept any interference received, including interference that may cause undesired operation. We believe that many users may be unaware of this requirement for Part 15 devices, so this statement provides useful information to users.⁹⁴ In addition, Section 15.19(a)(5) already contains a provision that permits the label to be placed in the instruction manual in cases where a device is so small that it is not practicable to place the statement on the device.⁹⁵ We decline to change the rules as requested by ITI and IBM to specify that the trade name and model number do not have to appear on the DoC label if they appear elsewhere on the equipment, because we already permit placement of this information elsewhere on the equipment when necessary.⁹⁶ Therefore, there is no need for the recommended rule change. Likewise, labeling for a device may be placed inside a battery compartment when necessary, so there is no need for a rule change.⁹⁷

27. We decline to permit electronic labeling of equipment subject to DoC or for any other equipment except software defined radios. The rules currently permit electronic labeling for software defined radios because there is sometimes a need for a third party to change the identification number of a radio in the field when changes are made to the software that affect the device's operating frequency, modulation type or maximum output power.⁹⁸ This permits the identification number to be changed without physical re-labeling of a radio. None of the comments in this proceeding have shown that there is a similar need for us to allow this capability in equipment subject to DoC or in any other equipment besides software defined radios.

5. Test Procedure for Unlicensed PCS Equipment

28. In the *Notice*, the Commission proposed to incorporate into our rules by reference American National Standards Institute (ANSI) C63.17-1998 as the procedure it will use for testing unlicensed Personal Communication Service (PCS) equipment.⁹⁹ This procedure was developed by the ANSI C63 Committee specifically for testing unlicensed PCS equipment for compliance with the requirements in Part 15 of the rules.

(Continued from previous page) _____

it is assembled. Subsequently, the Commission permitted many other Part 15 unintentional radiators such as receivers and VCRs to be authorized under the DoC procedure. There are no provisions for such devices to be assembled from tested components. *See* 47 C.F.R. § 15.101(a).

⁹⁴ *See* 47 C.F.R. § 15.5.

⁹⁵ *See* 47 C.F.R. § 15.19(a)(5).

⁹⁶ *See* 47 C.F.R. § 15.19(b)(3).

⁹⁷ *See* 47 C.F.R. §§ 15.19(b)(4) and 2.925(d)(2).

⁹⁸ *See* 47 C.F.R. § 2.925(e).

⁹⁹ *See Notice* at p. 18216.

29. CEA, Cisco and Motorola support the use of the C63.17-1998 procedure for testing unlicensed PCS equipment.¹⁰⁰ CEA and Motorola state that this procedure will help ensure that equipment complies with the Commission's rules.¹⁰¹ Cisco states that it was developed by qualified industry experts.¹⁰² We find that ANSI C63.17-1998 provides detailed guidance that will assist manufacturers in measuring unlicensed PCS devices to ensure that they comply with the requirements in our rules. Accordingly, we are incorporating this procedure into the rules by reference as the procedure we will use for testing unlicensed PCS equipment under Part 15 of the rules.

6. Approval of Very Low-Powered Devices

30. Part 15 currently requires all intentional radiators to be certified, regardless of how low an operating power they use.¹⁰³ Certification requires the manufacturer to have the equipment tested for compliance, then file an application and wait for approval before the equipment can be marketed.¹⁰⁴ In the *Notice*, the Commission proposed to exempt intentional radiators operating below 490 kHz from certification if the maximum field strength emitted is more than 40 dB below the applicable Part 15 limits.¹⁰⁵ As an alternative, the Commission sought comment on whether such devices should be subject to verification rather than exempted from any form of equipment authorization.¹⁰⁶ Verification simply requires the manufacturer to have the equipment tested and to retain certain information on file.¹⁰⁷ No application filing is required for verification and the equipment may be sold as soon as it is found to comply. The Commission stated that the interference potential of such devices appears to be extremely low, and that requiring certification seems to be an unnecessary burden on manufacturers.¹⁰⁸

31. The comments support eliminating the certification requirement for very low-powered intentional radiators, arguing that it is burdensome and unnecessary.¹⁰⁹ AdvaMed, Cisco, Linear, Polhemus and Uniden argue that such low-powered devices have a low potential for interference.¹¹⁰ TRP and AdvaMed state that signals 40 dB below the Part 15 limit are below the ambient noise level and are difficult to

¹⁰⁰ See CEA comments at 5, Cisco comments at 12 and Motorola comments at 3.

¹⁰¹ See CEA comments at 5 and Motorola comments at 3.

¹⁰² See Cisco comments at 12.

¹⁰³ See 47 C.F.R. § 15.201(b).

¹⁰⁴ See 47 C.F.R. §§ 2.803, 2.907 and 2.1033.

¹⁰⁵ See *Notice* at p. 18216. The proposed frequency cutoff of 490 kHz was selected to avoid possible interference to the marine distress band at 495-505 kHz, and the AM broadcast band at 535-1705 kHz.

¹⁰⁶ *Id.*

¹⁰⁷ See 47 C.F.R. §§ 2.902 and 2.955.

¹⁰⁸ See *Notice* at p. 18216.

¹⁰⁹ See AdvaMed comments at 2, Cisco comments at 12, ITI comments at 9, Linear comments at 5, Polhemus comments at 3-4, TIA comments at 6, TRP comments at 5-8, TRP reply comments at 3-6, Uniden comments at 4, and Wacom comments at 1.

¹¹⁰ See Cisco comments at 12, Linear comments at 5, Polhemus comments at 3, AdvaMed comments at 2 and Uniden comments at 4.

measure.¹¹¹ TRP believes that devices operating below 490 kHz that are battery operated with a self-contained antenna of much less than a wavelength should be exempted from any kind of equipment authorization if all emissions are at least 40 dB below the limit.¹¹² It also believes that devices that have emissions less than 40 dB below the limit and that connect to the AC power lines should be subject to verification, rather than exempted, because they have a somewhat higher potential for interference.¹¹³ TRP states that compliance by low-powered devices can be determined by mathematical calculation and that open field testing is not necessary.¹¹⁴ However, ITI believes that devices must be tested to show they are at least 40 dB below the limit. It states that once a device is tested, the additional burden imposed by verification is minor in nature.¹¹⁵ Wacom recommends that the upper frequency range of devices to be exempted should be 1705 kHz instead of 490 kHz, so that devices can use higher frequencies to avoid interference from computer monitors.¹¹⁶ TIA states that the 490 kHz cutoff is too restrictive, and believes that the Commission should also eliminate the certification requirement for 2.4 GHz Bluetooth transmitters operating with less than 1 mW of power because they must already go through a rigorous private sector certification process for industry acceptance.¹¹⁷

32. We find that requiring certification for intentional radiators operating below 490 kHz that have all emissions at least 40 dB below the limit is an unnecessary burden on manufacturers because the interference potential of such equipment is extremely low. Instead, we will require such equipment to be authorized through the verification procedure, thus eliminating the need for manufacturers to file an application and wait for an approval before marketing their equipment. Under the verification procedure, manufacturers may show that all emissions are at least 40 dB below the limit through testing. We recognize, however, that because of the low signal levels involved, it may be difficult to even detect such emissions with conventional measurement equipment. As an alternative to actual measurements, we will allow manufacturers instead to demonstrate through calculations or other analysis that all emissions from their equipment will be at least 40 dB below the limit. We find that it is necessary for manufacturers to make a determination that a device complies with the emission limits to prevent harmful interference to authorized services, and to retain records to demonstrate compliance with the limits. The verification procedure is the most appropriate means to ensure that manufacturers make the necessary determination of compliance and maintain records of this determination.

33. We decline to expand this decision to exempt from certification equipment used in bands above 490 kHz, as requested by Wacom.¹¹⁸ Wacom provided only assertions and no specific technical information to demonstrate that there would be interference problems from computer monitors to low-power transmitters operating below 490 kHz. In addition we believe that the higher level of oversight of certification is necessary at this time to protect the marine distress band at 495-505 kHz and the AM broadcast band at 535-1705 kHz from interference caused by non-compliant equipment. We decline to

¹¹¹ See TRP comments at 5 and AdvaMed comments at 2.

¹¹² See TRP reply comments at 3.

¹¹³ See TRP reply comments at 4.

¹¹⁴ See TRP reply comments at 3.

¹¹⁵ See ITI comments at 9.

¹¹⁶ See Wacom comments at 1.

¹¹⁷ See TIA comments at 6.

¹¹⁸ See Wacom comments at 1.

exempt intentional radiators from authorization if they are battery operated and all radiated emissions are more than 40 dB below the Part 15 limits, as requested by TRP. As noted above, we find that verification is the appropriate means to ensure that manufacturers make the necessary determination of equipment compliance and maintain records of this determination. We decline to permit intentional radiators operating above 490 kHz that have emissions less than 40 dB below the limit to be authorized through verification procedure, rather than the current certification procedure. As TRP noted, such equipment has a higher potential to cause interference, so we find that the higher level of oversight of certification is necessary. We also decline to exempt other types of devices such as Bluetooth transmitters from certification as TIA requested, because such equipment has a significantly higher potential for causing interference than other low power intentional radiators that we are permitting to be verified, so we find that the higher level of oversight of certification is appropriate for such equipment.¹¹⁹ TIA has not provided information to show that the private sector certification procedure it cites is comparable to our certification procedure for demonstrating compliance with the rules. We also note that Bluetooth devices operating under 1 mW can already be certificated by private sector Telecommunication Certification Bodies.

7. Information to the User

34. Part 15 requires certain information to be included in the instruction manual, including a statement that unauthorized modifications to a device could void the user's authority to operate it.¹²⁰ In addition, the manual for a digital device must include a warning of the potential for interference to other devices and a list of some steps that could possibly eliminate the interference.¹²¹ In the *Notice*, the Commission proposed to permit manufacturers to provide this type of information in the instruction manual in whatever form the manual is supplied.¹²² This could be on paper, a computer disk, a CD-ROM or over the Internet. The Commission noted that while the rules originally envisioned that this information would be included in a paper instruction manual, the Commission has permitted this warning information to be provided by alternative means, such as a CD-ROM.¹²³ It sought comment on whether Internet-delivered manuals create accessibility problems for consumers without Internet access or for groups of consumers for whom obtaining Internet access is difficult. The Commission also sought comment on whether allowing important information to be delivered only over the Internet would result in certain consumers having insufficient access to information, and on whether allowing warnings to be delivered exclusively online would result in a significant reduction in the number of consumers who receive the warnings.

35. Linear supports the proposed change to the user manual requirements because it should make no difference if the manuals are printed on paper, on a CD-ROM or available over the Internet.¹²⁴ ITI states that providing warnings and information statements in the same form as the user manual will result in cost savings to the industry.¹²⁵ It believes that allowing alternative means of accessing information could

¹¹⁹ See TRP reply comments at 4 and TIA comments at 6.

¹²⁰ See 47 C.F.R. § 15.21.

¹²¹ See 47 C.F.R. § 15.105.

¹²² See *Notice* at p. 18217.

¹²³ *Id.*.

¹²⁴ See Linear comments at 5.

¹²⁵ See ITI comments at 4.

enhance access to the disabled community because computers could “read” information to the user or magnify it for easier viewing.¹²⁶ CEA, Motorola and TIA support providing flexibility for manufacturers to provide information by paper, disk, CD-ROM or the Internet, but believe that user warning information pertaining to safety aspects of equipment should be required in hard copy form that can be retained because not all users will have access to a computer or the Internet.¹²⁷ Cisco states there is no reason to believe that permitting online delivery will limit access because Internet access is not limited, and because manufacturers can and do provide contact information for consumers who desire to obtain manuals and warning statements by traditional means.¹²⁸ IBM and ITI believe that information should be allowed to be made available over the Internet only if that is the sole method through which the user manual is supplied and the equipment will be used with Internet access.¹²⁹ IBM requests that the proposed changes also apply to Section 15.27(a), which requires a statement in the user’s manual when special accessories are required for a device to comply with the rules.¹³⁰ Nickolaus E. Leggett and Steven Bryant stated that allowing instruction manuals to be provided over the Internet alone should not be permitted because many households have slow Internet access or no Internet access at all.¹³¹

36. As proposed, we will permit the warning statements required by Part 15 to be placed in the instruction manual when the manual is provided in formats other than paper, such as on a computer disk or over the Internet. This change will provide increased flexibility to manufacturers and will result in cost savings to the industry. As ITI notes, allowing alternative means of accessing information could enhance access to the disabled community because computers could “read” information to the user or magnify it for easier viewing. However, we recognize that some persons do not have access to a computer or the Internet, so such persons would not have the capability of reading instruction manuals in alternative forms. Therefore, we will allow warning statements to be provided in alternative forms only when the instruction manual is provided in the same alternative form and the user can reasonably be expected to have the capability to access information in that form. For example, warning statements may be provided in a manual on a CD-ROM or other type of computer disk when no paper manual is provided, and the equipment either has the capability of reading the disk or is used with equipment that is capable of reading the disk. Warning statements may be provided in a manual on the Internet only when the manual is provided solely over the Internet and the equipment will be used with Internet access. We believe that these requirements will help ensure that the Part 15 warning statements are accessible to all persons using a given device. We are also making this change applicable to Section 15.27(a) as requested by IBM, because that section lists information that must be included in the instruction manual. We note that the Commission’s Laboratory sometimes requires manufacturers to provide information in the instruction manual advising users that equipment must be operated at a minimum distance from the body to comply with the RF safety guidelines in the rules.¹³² We will allow such statements to be provided in the same manner as the Part 15 warning statements. If the instruction manual is provided in an alternative format,

¹²⁶ See ITI comments at 4.

¹²⁷ See CEA comments at 6, Motorola comments at 3 and TIA comments at

¹²⁸ See Cisco comments at 9.

¹²⁹ See IBM comments at 3 and ITI comments at 4.

¹³⁰ See IBM comments at 3.

¹³¹ See Nickolaus E. Leggett comments at 4 and Steven Bryant comments at 3.

¹³² The Commission’s rules recognize that compliance with the RF exposure guidelines for certain types of devices can be accomplished with warning labels and providing information to users. See 47 C.F.R. § 2.1091(d)(3).

manufacturers can provide the RF safety statements information in hard copy form if they choose, but we will not require them to do so.

8. Emission Limits above 2 GHz

37. While the Commission did not propose any changes to the general radiated emission limits in Part 15 of the rules or to the radiated emission limits that apply outside the Industrial, Scientific and Medical (ISM) bands under Part 18 of the rules, several parties filed comments recommending changes to these limits.¹³³ ITI states that it may be appropriate to increase the Part 15 limits in steps above 6 GHz, 10.5 GHz and 15 GHz, but did not recommend specific limits.¹³⁴ Linear believes that the current Part 15 limit of 500 $\mu\text{V/m}$ at 3 meters above 960 MHz should increase by 3 dB for every doubling of frequency.¹³⁵ Sirius Satellite Radio, Inc. (Sirius) requests that we reduce the current Part 15 and 18 limits to 8.6 $\mu\text{V/m}$ at 3 meters in the satellite digital audio radio service (SDARS) band.¹³⁶ XM Radio, Inc. (XM) requests that we establish a limit in the SDARS band of 18 $\mu\text{V/m}$ at 3 meters for Part 15, 18 and 95 devices operating exclusively in vehicles, and a limit of 8.6 $\mu\text{V/m}$ at 3 meters for such devices operating in all other environments.¹³⁷ Intersil and Motorola oppose Sirius' and XM's recommended emission limits in the SDARS bands, disputing the methodology used to arrive at the recommended limits.¹³⁸ Because the *Notice* did not include proposals for any changes to the general radiated emission limits for equipment operating under Parts 15, 18 or other parts of the rules, we find that the requests made by ITI and Linear to raise the emission limits above 960 MHz are outside the scope of this proceeding. Likewise, we find that the requests by XM and Sirius for tighter emission limits in the SDARS band are also outside the scope of this proceeding.

9. Additional changes to Part 15

38. In the *Notice*, the Commission proposed additional changes to Part 15 of the rules to modify rule sections that needed to be updated to reflect the availability of more recent industry documents, or that needed other minor revisions. The following is a summary of the proposed changes:

- **Section 15.31 Measurement standards:** remove references to measurement procedures that are no longer used, correct the Commission's mailing address, update the reference to reflect the new ANSI C63.4-2001 measurement procedure and clarify the type of antenna used for radiated measurements below 30 MHz.
- **Section 15.118 Cable ready consumer electronics equipment:** correct the Commission's mailing address.
- **Section 15.120 Program blocking technology requirements for television receivers:** correct the Commission's mailing address.

¹³³ See 47 C.F.R. § 15.109, which applies to unintentional radiators, 47 C.F.R. § 15.209, which applies to intentional radiators, and 47 C.F.R. § 18.305(b), which applies to emissions that appear outside of ISM bands.

¹³⁴ See ITI comments at 7-8.

¹³⁵ See Linear comments at 3.

¹³⁶ See Sirius comments at 2.

¹³⁷ See XM comments at 1-2.

¹³⁸ See Intersil reply comments at 7 and Motorola reply comments at 1.

- **Section 15.255 Operation in the band 59.0-64.0 GHz:** correct the wording in paragraph (b)(5) from “emission limits” to “emission levels”.

39. CEA, IBM, Motorola and TIA support these proposals to update and correct the rules.¹³⁹ ITI and Cisco support referencing the C63.4-2001 measurement procedure in place of the C63.4-1992 measurement procedure currently referenced in the rules. They also request that we exclude the use of Section 8.2.2 of C63.4, which permits measurements of radiated emissions below 30 MHz to be made with a rod antenna, because the Commission and Telecommunication Certification Bodies only accept measurements made with a calibrated loop antenna.¹⁴⁰ Retlif and ACIL oppose the use of the C63.4-2001 measurement procedure, stating that there will be no consistent application of the new standard for many years because there were wide differences in interpretation of the standard within the committee that approved it.¹⁴¹ IBM suggests that we permit use of the CISPR 22 measurement procedure below 1 GHz as an alternative to the C63.4 procedure to eliminate the potential for dual testing of products worldwide.¹⁴² IBM also suggests that we adopt the CISPR 22 emission limits as alternatives to our AC power line and radiated emission limits for intentional radiators in Sections 15.207 and 15.209 of the rules.¹⁴³ IBM states this could eliminate multiple testing of computers that contain transmitters because our rules permit computers, but not transmitters, to be tested for compliance with the CISPR 22 limits, so multiple tests may be required for one device.¹⁴⁴

40. We are adopting the changes we proposed to update and correct the rules, including referencing the C63.4-2001 measurement procedure. C63.4-2001 provides clarifications to the measurement procedure and configuration of the equipment under test, but does not contain any significant changes from C63.4-1992 that will affect measurement results. As proposed, we will exclude the use of Section 8.2.2 of C63.4-2001 concerning rod antennas because we have found that calibrated loop antennas provide more accurate and repeatable field strength measurements below 30 MHz. Referencing the new procedure is necessary because the C63.4-1992 procedure referenced in our rules is no longer available from the Institute of Electrical and Electronics Engineers (IEEE) Standards Department. We do not accept the recommendation of Retlif and ACIL not to reference C63.4-2001 in the rules. C63.4-2001 has gone through the ANSI review process and has been adopted as an ANSI standard. We decline to specify the use of the CISPR 22 measurement procedure as an alternative to the C63.4 procedure as requested by IBM. We support the concept of a single compliance test for equipment. In this case, though, there are differences between the two procedures and it has not been shown that the procedures produce equivalent measurement results. For example, the CISPR 22 procedure specifies the use of ferrite clamps on some cables on the equipment under test, while the C63.4 procedure does not. We will consider the possibility of recognizing the CISPR 22 procedure as an alternative to the C63.4 procedure, as well as the possibility of accepting the CISPR 22 limits for intentional radiators, at a later time.

¹³⁹ See CEA comments at 7, IBM comments at 5, Motorola comments at 4 and TIA comments at 8.

¹⁴⁰ See ITI comments at 7 and Cisco comments at 12.

¹⁴¹ See Retlif comments at 2 and ACI comments at 2.

¹⁴² See IBM comments at 4.

¹⁴³ See IBM comments at 5. See also 47 C.F.R. §§ 15.207 and 15.209.

¹⁴⁴ See IBM comments at 5.

B. Revisions to Part 2

1. Family Radio Service Equipment Measurements.

41. In the *Notice*, the Commission proposed to require that carrier frequency tolerance measurements for Family Radio Service (FRS) transmitters be made over the temperature range of -20°C to $+50^{\circ}\text{C}$ rather than -30°C to $+50^{\circ}\text{C}$. This proposal was intended to correct an inadvertent conflict between the rules and existing Commission measurement practices that arose when the Commission streamlined the equipment authorization procedures in 1998.¹⁴⁵

42. Cobra Electronics Corporation (Cobra) and Uniden America Corporation (Uniden) support the proposed change.¹⁴⁶ Uniden states that measurements should be required only to -20°C , because years of experience with radios tested to this temperature show that no adverse consequences have been observed in the real world. Cobra states that millions of FRS units have been produced that were tested to -20°C with no reported difficulties from the users of the radio, so the rules should be amended to reflect the temperature range over which measurements have been required.

43. We find that -20°C to $+50^{\circ}\text{C}$ is the appropriate temperature range for which frequency stability measurements should be made on FRS transmitters. FRS is a very short distance voice communication service intended for facilitating family and group activities, and we do not expect that FRS equipment would be used frequently at temperatures below -20°C (-4°F). The relatively low power of this equipment means that there would not be a significant risk of interference even if the carrier frequency were to drift out of tolerance below -20°C . We note that the -20°C to $+50^{\circ}\text{C}$ temperature range is consistent with the requirements in Part 15 for low power transmitters that require frequency stability measurements.¹⁴⁷ Finally, as Uniden and Cobra stated, many FRS transmitters have been approved and marketed that have been tested to only -20°C , and there have been no apparent problems. Accordingly, we are requiring the frequency tolerance of FRS transmitters to be measured over the temperature range of -20°C to $+50^{\circ}\text{C}$, as proposed.

2. Accreditation of Test Laboratories

44. In the *Notice*, the Commission proposed that a test laboratory that has been accredited by an organization recognized by the Commission would no longer have to file a description of its measurement facilities with Commission, provided the accrediting organization submitted certain information about the laboratory to the Commission.¹⁴⁸ The information that would have to be submitted would be the laboratory name, address, contact information, scope of accreditation, date of accreditation, and the date by which the accreditation must be renewed.¹⁴⁹ This proposal was intended to reduce the burden on laboratories by eliminating the need for them to file duplicate information with both the Commission and an accrediting organization. The Commission also proposed to clarify the conditions for recognizing the accreditation of laboratories outside the United States. Specifically, laboratories outside the United States

¹⁴⁵ See *Notice* at p. 18217-18218.

¹⁴⁶ See Cobra comments at 5-6 and Uniden comments at 5.

¹⁴⁷ See 47 C.F.R. §§ 15.225(c), 15.229(d), 15.233(g), 15.253(e), 15.255(f), 15.321(e) and 15.323(f).

¹⁴⁸ See *Notice* at p. 18218.

¹⁴⁹ *Id.*

would be recognized by the Commission if one of the following two conditions are met: 1) the laboratory has been designated by a foreign authority and recognized by the Commission under the terms of a government-to-government Mutual Recognition Agreement or Arrangement (MRA); or 2) the laboratory has been accredited by an organization whose accreditations are recognized by the Commission.

45. CEA, Cisco, IBM, Motorola and TIA support eliminating the requirement for accredited laboratories to file a description of their measurement facilities with the Commission.¹⁵⁰ These parties state that it is unnecessary for this information to be filed with the Commission because it has already been filed with the accrediting organization. However, Retlif Testing Laboratories (Retlif) and the American Council for Independent Laboratories (ACIL) oppose removing this requirement, stating the change would add costs for the accredited laboratory because the accredited laboratory would have to pay for the accrediting organization to file this information with the Commission. CEA, Cisco, ITI, Motorola and TIA support the proposed criteria for recognizing the accreditations of laboratories outside the United States.¹⁵¹ Cisco states that the change would be an enormous benefit for companies participating in the global marketplace.¹⁵² ITI states that the proposed change would simplify the conditions under which an accredited laboratory may be accredited for testing to Commission requirements and would be an improvement in the process of obtaining approval to use foreign laboratories for testing for a DoC.¹⁵³ IBM and ITI recommend that we recognize the accreditation of foreign laboratories by National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST NVLAP) or the American Association for Laboratory Accreditation (A2LA).¹⁵⁴ They also believe that the language in the rules should reference “measurement facilities” rather than “open field sites” so as not to preclude the use of semi-anechoic chambers for testing.¹⁵⁵

46. We are adopting our proposal to not require accredited laboratories to file a description of their measurement facilities with us, provided the accrediting organization has submitted certain information about the laboratories to the Commission. This information must include the laboratory name, address (both the test site address and company mailing address), contact information, the accrediting organization’s name, its designation number for the laboratory and the date by which the accreditation must be renewed. In addition, the name of the MRA must be provided for accredited laboratories outside of the United States designated under the terms of a government-to-government MRA. Consistent with the current requirements for filing measurement facility descriptions, the information submitted by the accrediting organization must also include an FCC Registration Number (FRN), which is required for all organizations doing business with the Commission, and a “yes/no” indication as to whether the laboratory will perform testing on a contract basis.¹⁵⁶ This will reduce the burden on accredited laboratories by

¹⁵⁰ See CEA comments at 6, Cisco comments at 10, IBM comments at 4, Motorola comments at 4 and TIA comments at 7.

¹⁵¹ See CEA comments at 7, Cisco comments at 11, ITI comments at 6, Motorola comments at 4 and TIA comments at 8.

¹⁵² See Cisco comments at 11.

¹⁵³ See ITI comments at 6.

¹⁵⁴ See IBM comments at 4 and ITI comments at 6.

¹⁵⁵ *Id.* A semi-anechoic chamber is a shielded room used for testing in which the walls and ceiling are lined with a material to absorb RF energy. It is designed to provide measurement results that are equivalent to those made on an open field test site. The Commission already permits the use of semi-anechoic chambers as an alternative to open field test sites. See 47 C.F.R. § 2.948(b)(8)(i) and Section 5.4 of ANSI C63.4.

¹⁵⁶ See 47 C.F.R. §§ 1.8002(a) and 2.948(b)(7).

eliminating the need for them to file duplicate information with the Commission and an accrediting organization.

47. We disagree with Retlif and ACIL that this change would significantly increase costs for laboratories. Accrediting organizations already have the information that we need in their records, and the Commission has developed an electronic system that these organizations can use to quickly and easily transmit the information to us.¹⁵⁷ Further, accrediting organizations currently submit certain information about the laboratories they have accredited in paper form to the Commission, and we do not expect that a change from paper filing to electronic filing of this information will result in any increase in accreditation costs. We are not mandating accreditation for laboratories, and laboratories that are not accredited may continue to use the current procedure for filing test site description information with the Commission to be placed on our test site list.¹⁵⁸

48. We also are adopting the criteria we proposed for accepting the accreditation of laboratories located outside the United States, which are that the laboratory has been accredited by a foreign authority and recognized by the Commission under the terms of a government-to-government Mutual Recognition Agreement or Arrangement, or that the laboratory has been accredited by an organization whose accreditations are recognized by the Commission. These changes will simplify the conditions for accepting the accreditation of foreign laboratories by eliminating the prohibition on foreign accreditors accrediting laboratories outside their own country. The current rules already permit NVLAP and A2LA to accredit laboratories outside the United States, so there is no need for us to make a change to permit this as requested by IBM and ITI. These changes address the concerns raised by ITI in its petition for reconsideration filed in ET Docket 95-19, so we are in effect granting that petition.¹⁵⁹ We agree with IBM and ITI that the rules should reference “measurement facilities” rather than “open field sites” so as not to preclude the use of semi-anechoic chambers for testing, and the rules we are adopting reflect that recommendation.

3. Additional changes to Part 2

49. In the *Notice*, the Commission proposed to make additional changes to Part 2 of the rules to modify sections that need to be updated to reflect the availability of more recent industry documents, or that needed other minor revisions.¹⁶⁰ We received comments supporting the proposals and are adopting the following changes.¹⁶¹

- **Section 2.202 Bandwidths:** add entries to the table of necessary bandwidth calculations in paragraph (g) for newer digital modulation types.

¹⁵⁷ This system can be accessed on the Commission’s Internet site at www.fcc.gov/e-file/.

¹⁵⁸ Laboratory accreditation is only required for laboratories that wish to perform testing for the Declaration of Conformity (DoC) procedure. Laboratories that are not accredited may perform testing for equipment that is verified for compliance or certified by the Commission or a designated Telecommunication Certification Body (TCB). See 47 C.F.R. § 2.948.

¹⁵⁹ ITI argued in their petition that the rules we adopted in ET Docket 95-19 for recognizing the accreditation of foreign laboratories imposed unnecessary trade fairness criteria. The changes we are adopting in this proceeding remove the criteria to which ITI objected.

¹⁶⁰ See *Notice* at p. 18219.

¹⁶¹ See IBM comments at 5, CEA comments at 7, Motorola comments at 4 and TIA comments at 8.

- **Section 2.948 Description of measurement facilities:** remove references to expired transition dates and obsolete measurement procedures, update references to reflect the availability of the new ANSI C63.4-2001 measurement procedure, and to correct the Commission's mailing address.
- **Section 2.1033 Application for certification:** re-designate paragraph 2.1033(c)(17) on composite devices as paragraph 2.1033(d) to correct a numbering error.
- **Sections 2.1061 through 2.1065 Filing for Application Reference:** remove this procedure because it is not used.

50. In addition to these changes, we are adding the heading "Telecommunication Certification Bodies (TCBs)" prior to Section 2.960 of the rules. This change clarifies that the subsequent sections refer to the requirements for TCBs, and are not part of the requirements for verification, which is the last heading prior to Section 2.960. Because this is an editorial change, it can be made without notice and comment.

C. Changes to Part 18

51. In the *Notice*, the Commission proposed to delete certain rule sections in Part 18 that appear to be unnecessary.¹⁶² We received no comments opposing these proposals, and remain convinced of their propriety. We are therefore adopting the following changes.¹⁶³

- **Section 18.103 Organization and applicability of the rules:** delete because it duplicates the table of contents for Part 18.
- **Section 18.105 Other applicable rules:** delete because it provides little information and is not necessary.
- **Section 18.119 Importation:** delete because it duplicates portions of the rules in Part 2.

D. Changes to Part 90

52. In the *Notice*, the Commission proposed to correct an error in Section 90.203(k) of the rules concerning the certification requirements for equipment used in the Private Land Mobile Radio Service (PLMRS).¹⁶⁴ Specifically, the Commission proposed to delete the requirement that PLMRS transmitters in the 220 MHz band comply with minimum standards for spectral efficiency that was erroneously in this section. This error occurred when a summary of the *Report and Order* in ET Docket No. 97-94 streamlining the equipment authorization processes was published in the Federal Register.¹⁶⁵ This *Report and Order* modified Section 90.203(k) by changing the term "type acceptance" to "certification" throughout, but made no changes to the rest of the section.¹⁶⁶ For clarity, the rule appendix in the *Report*

¹⁶² See *Notice* at p. 18219.

¹⁶³ See IBM comments at 5, CEA comments at 7, Motorola comments at 4 and TIA comments at 8.

¹⁶⁴ See *Notice* at p. 18219.

¹⁶⁵ See *Report and Order* in ET Docket No. 97-94, 13 FCC Rcd 11415 (1998).

¹⁶⁶ Previously, the Commission had separate approval processes for equipment used in authorized services and for equipment that can be operated on an unlicensed basis. These processes were known as "type acceptance" and "certification" respectively. In the streamlining *Report and Order*, we combined the two processes into a single process called "certification."

and Order showed the entire text of this paragraph as revised. Subsequent to the adoption of the *Report and Order*, the Commission adopted a *Memorandum Opinion and Order* in a separate proceeding that also revised Section 90.203(k). In that action, the Commission removed the requirement for Part 90 transmitters operating in the 220 MHz band to comply with spectral efficiency requirements. While the *Memorandum Opinion and Order* was adopted and released after the *Report and Order*, a summary of it was published in the Federal Register before the summary of the *Report and Order*. Therefore, when the *Report and Order* was published in the Federal Register, the spectral efficiency requirement that was deleted by the *Memorandum Opinion and Order* was inadvertently placed back in the rules.

53. On May 23, 2001, M/A-COM Private Radio Systems, Inc. (M/A-COM) filed a Petition for Declaratory Ruling, requesting that we clarify that the spectral efficiency requirement should no longer be in Section 90.203(k) of the rules. M/A-COM notes that this section is incorrect because of the two rule making items adopted by the Commission that were published in the Federal Register out of sequence.¹⁶⁷ We are correcting this section by deleting the spectral efficiency requirement that was removed by the *Memorandum Opinion and Order*, and are therefore in effect granting M/A-COM's petition.

E. Changes to Part 95

54. Section 95.1115(b) specifies the out-of-band field strength limits for transmitters operating in the Wireless Medical Telemetry Service.¹⁶⁸ We are correcting two typographical errors in this section that arose when the rules were published in the Federal Register.¹⁶⁹ Specifically, we are correcting the field strength units of measurement to read " $\mu\text{V/m}$ ", rather than " μ/m " and " μm " as they currently appear in the rules. Because these are editorial changes, they can be made without notice and comment.

IV. PROCEDURAL MATTERS

55. Final Regulatory Flexibility Analysis. The Final Regulatory Flexibility Analysis for this Second Report and Order and Memorandum Opinion and Order, pursuant to the Regulatory Flexibility Act, *see* 5 U.S.C. § 604, is contained in Appendix C.

56. This Second Report and Order and Memorandum Opinion and Order contains new or modified information collections subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection(s) contained in this proceeding.

57. To make cited sources more easily available to the readers, we are testing the use of hyperlinks to some FCC documents that are cited in this document. The World Wide Web addresses/URLs that we give here were correct at the time this document was prepared but may change over time. We do not have staff dedicated to updating these URLs, however, so readers may find some URLs to be out of date as time progresses. We also advise that the only definitive text of FCC documents is the one that is published in the FCC Record. In case of discrepancy between the electronic documents cited here and the FCC Record, the version in the FCC Record is definitive.

¹⁶⁷ See *Report and Order (R&O)* in ET Docket No. 97-94, 13 FCC Rcd 11415 (1998) and *Memorandum Opinion and Order (MO&O)* in PR Docket No. 89-552, GN Docket No. 93-252 and PP Docket No. 93-253, 13 FCC Rcd. 14569 (1998).

¹⁶⁸ See 47 C.F.R. § 95.1115(b).

¹⁶⁹ See 65 FR 44008 (2000).

58. For further information regarding this Second Report and Order and Memorandum Opinion and Order, contact Mr. Hugh L. Van Tuyl, Office of Engineering and Technology, (202) 418-7506, e-mail Hugh.VanTuyl@fcc.gov.

V. ORDERING CLAUSES

59. Accordingly, IT IS ORDERED that pursuant to the authority contained in Sections 4(i), 301, 302, 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 USC Sections 154(i), 301, 302, 303(e), 303(f) and 303(r), this Second Report and Order and Memorandum Opinion and Order IS ADOPTED and Parts 2, 15, 18, 90 and 95 of the Commission's Rules ARE AMENDED as set forth in Appendix A effective 120 days after publication in the Federal Register.

60. IT IS FURTHER ORDERED that pursuant to the authority contained in Sections 4(i), 301, 302, 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 USC Sections 154(i), 301, 302, 303(e), 303(f) and 303(r), the petition for reconsideration filed by the Information Technology Institute in ET Docket No. 95-19 on September 3, 1997 IS GRANTED to the extent indicated herein. IT IS FURTHER ORDERED that ET Docket No. 95-19 IS TERMINATED.

61. IT IS FURTHER ORDERED that pursuant to the authority contained in Sections 4(i), 301, 302, 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 USC Sections 154(i), 301, 302, 303(e), 303(f) and 303(r), the petition for declaratory ruling filed by M/A-COM Private Radio Systems, Inc. on May 23, 2001 IS GRANTED to the extent indicated herein.

62. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Second Report and Order and Memorandum Opinion and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A: FINAL RULE CHANGES

Part 2 of Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303 and 336, unless otherwise noted.

2. Section 2.202 is amended by appending the following entries to the end of the table in paragraph (g):

§ 2.202 Bandwidths.

* * * * *

(g) Table of necessary bandwidths.

* * *

Description of emission	Necessary bandwidth		Designation of emission
	Formula	Sample Calculation	
Radio-relay system	$B_n = 2K/t$ $K=1.6$	Pulse position modulated by 36 voice channel baseband; pulse width at half amplitude $0.4 \mu\text{S}$; $B_n = 8 \times 10^6 \text{ Hz} = 8 \text{ MHz}$ (Bandwidth independent of the number of voice channels)	8M00M7E
Composite transmission digital modulation using DSB-AM (Microwave radio relay system)	$B_n = 2RK/\log_2 S$	Digital modulation used to send 5 megabits per second by use of amplitude modulation of the main carrier with 4 signaling states $R = 5 \times 10^6 \text{ bits per second}$; $K = 1$; $S = 4$; $B_n = 5 \text{ MHz}$	5M00K7
Binary Frequency Shift Keying	$(0.03 < 2D/R < 1.0)$; $B_n = 3.86D + 0.27R$ $(1.0 < 2D/R < 2)$ $B_n = 2.4D + 1.0R$	Digital modulation used to send 1 megabit per second by frequency shift keying with 2 signaling states and 0.75 MHz peak deviation of the carrier. $R = 1 \times 10^6 \text{ bps}$; $D = 0.75 \times 10^6 \text{ Hz}$; $B_n = 2.8 \text{ MHz}$	2M80F1D
Multilevel Frequency Shift Keying	$B_n = (R/\log_2 S) + 2DK$	Digital modulation to send 10 megabits per second by use of frequency shift keying with four signaling states and 2 MHz peak deviation of the main carrier. $R = 10 \times 10^6 \text{ bps}$; $D = 2 \text{ MHz}$; $K = 1$; $S = 4$; $B_n = 9 \text{ MHz}$	9M00F7D
Phase Shift Keying	$B_n = 2RK/\log_2 S$	Digital modulation used to send 10 megabits per second by use of phase shift keying with 4 signaling states $R = 10 \times 10^6 \text{ bps}$; $K = 1$; $S = 4$; $B_n = 10 \text{ MHz}$	10M0G7D
Quadrature Amplitude Modulation (QAM)	$B_n = 2R/\log_2 S$	64 QAM used to send 135 Mbps has the same necessary bandwidth as 64-PSK used to send 135 Mbps; $R = 135 \times 10^6 \text{ bps}$; $S = 64$; $B_n = 45 \text{ MHz}$	45M0W
Minimum Shift Keying	2-ary: $B_n = R(1.18)$ 4-ary $B_n = R(2.34)$	Digital modulation used to send 2 megabits per second using 2-ary minimum shift keying $R = 2.36 \times 10^6 \text{ bps}$; $B_n = 2.36 \text{ MHz}$	2M36G1D

3. The following heading is inserted before Section 2.960:

“TELECOMMUNICATION CERTIFICATION BODIES (TCBS)”

4. Section 2.948 is amended by adding a new sentence to the end of paragraph (a)(2), by revising paragraphs (a)(3), (b)(8) and (d) and by adding a new paragraph (e):

§ 2.948 Description of measurement facilities.

(a) * * *

(2) * * * A laboratory that has been accredited in accordance with subsection (d), below, is not required to file a description of its facilities with the Commission’s laboratory, provided the accrediting organization [or designating authority in the case of foreign laboratories] submits the following information to the Commission’s laboratory:

- (i) Laboratory name, location of test site(s), mailing address and contact information
- (ii) Name of accrediting organization
- (iii) Date of expiration of accreditation
- (iv) Designation number
- (v) FCC Registration Number (FRN)
- (vi) A statement as to whether or not the laboratory performs testing on a contract basis.
- (vii) For laboratories outside the United States, the name of the mutual recognition agreement or arrangement under which the accreditation of the laboratory is recognized.

(3) If the equipment is to be authorized under the Declaration of Conformity procedure, the laboratory making the measurements must be accredited in accordance with subsection (d) below.

* * * * *

(b) * * *

(8) For a measurement facility that will be used for testing radiated emissions, a plot of site attenuation data taken pursuant to the procedures contained in Sections 5.4.6 through 5.5 of the following procedure: American National Standards Institute (ANSI) C63.4–2001, entitled “American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz” published by the American National Standards Institute on June 22, 2001 as document number SH94908. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of C63.4–2001 may be obtained from: IEEE Standards Department, 455 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855–1331, telephone 1–800–678–4333 or +1-732-981-0600 (outside the United States and Canada). Copies of ANSI C63.4–2001 may be inspected at the following locations:

- (i) Federal Communications Commission, 445 12th Street, S.W., Office of Engineering and Technology (room 7-B144), Washington, DC 20554,
- (ii) Federal Communications Commission Laboratory, 7435 Oakland Mills Road, Columbia, MD 21046, or
- (iii) Office of the Federal Register, 800 North Capitol Street, N.W., suite 700, Washington, DC.

* * * * *

(d) A laboratory that has been accredited with a scope covering the required measurements shall be deemed competent to test and submit test data for equipment subject to verification, DoC and certification. Such a laboratory shall be accredited by an approved accreditation organization based on the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) Standard 17025, "General Requirements for the Competence of Calibration and Testing Laboratories." The organization accrediting the laboratory must be approved by the Commission's Office of Engineering and Technology, as indicated in § 0.241 of this chapter, to perform such accreditation based on ISO/IEC 58, "Calibration and Testing Laboratory Accreditation Systems--General Requirements for Operation and Recognition." The frequency for revalidation of the test site and the information that is required to be filed, or retained by the testing party shall comply with the requirements established by the accrediting organization.

(e) The accreditation of a laboratory located outside of the United States, or its possessions, will be acceptable only under one of the following conditions:

(1) If the accredited laboratory has been designated by a foreign designating authority and recognized by the Commission under the terms of a government-to-government Mutual Recognition Agreement/Arrangement; or

(2) If the laboratory has been recognized by the Commission as being accredited by an organization that has entered into an arrangement between accrediting organizations and the arrangement has been recognized by the Commission.

5. Section 2.1033 is amended by renumbering paragraph (c)(17) as paragraph (d).

6. Section 2.1055, paragraph (a)(2) is amended by adding the words " , and equipment authorized for use in the Family Radio Service under Part 95 of this chapter." to the end of this paragraph.

7. The heading "FILING FOR APPLICATION REFERENCE" before Section 2.1061 is deleted.

8. Sections 2.1061 through 2.1065 are deleted.

Part 15 of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

9. The authority citation for Part 15 continues to read as follows:

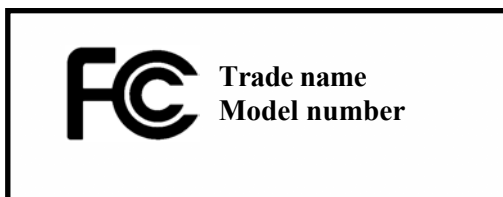
AUTHORITY: 47 U.S.C. 154, 302, 303, 304, 307 and 544A.

10. Section 15.19 is amended by replacing the graphics in paragraphs (b)(1)(i) and (b)(1)(ii) with the following graphics.

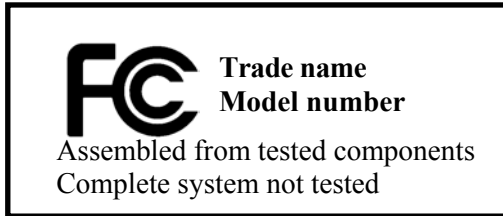
§ 15.19 Labeling requirements.

* * * * *

(b)(1)(i) * * *



(b)(1)(ii)* * *



* * * * *

11. Section 15.21 is amended by adding the following sentence to the end of the Section:

§ 15.21 Information to user.

* * * * *

In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

12. Section 15.27 is amended by adding the following sentence to the end of paragraph (a):

§ 15.27 Special accessories.

(a) *****

In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

13. Section 15.31 is amended by revising paragraph (a) as follows:

§ 15.31 Measurement standards.

(a) The following measurement procedures are used by the Commission to determine compliance with the technical requirements in this part. Except where noted, copies of these procedures are available from the Commission's current duplicating contractor whose name and address are available from the Commission's Consumer and Governmental Affairs Bureau at 1-888-CALL FCC (1-888-225-5322).

(1) FCC/OET MP-2: Measurement of UHF Noise Figures of TV Receivers.

(2) Unlicensed Personal Communication Service (UPCS) devices are to be measured for compliance using American National Standards Institute (ANSI) C63.17-1998, entitled "American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices", published by the Institute of Electrical and Electronics Engineers, Inc. on March 24, 1998 as document number SH94568. This

incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51.

(3) Other intentional and unintentional radiators are to be measured for compliance using the following procedure excluding section 4.1.5.2, section 5.7, section 9 and section 14: American National Standards Institute (ANSI) C63.4-2001, entitled “American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz” published by the Institute of Electrical and Electronics Engineers, Inc. on June 22, 2001 as document number SH94908. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

(i) Copies of ANSI C63.17-1998 and C63.4-2001 may be obtained from: IEEE Standards Department, 455 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, telephone 1-800-678-4333 or +1-732-981-0600 (outside the United States and Canada).

(ii) Copies of ANSI C63.17-1998 and C63.4-2001 may be inspected at the following locations:

(1) Federal Communications Commission, 445 12th Street, S.W., Office of Engineering and Technology (room 7-B144), Washington, DC 20554,

(2) Federal Communications Commission Laboratory, 7435 Oakland Mills Road, Columbia, MD 21046, or

(3) Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

14. Section 15.105 is amended by adding a new paragraph (e)

§ 15.105 Information to the user.

* * * * *

(e) In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

15. Section 15.118 is amended by changing the Federal Communications Commission’s mailing address to paragraph (b) to “Federal Communications Commission, 445 12th Street, S.W., Washington, D.C.”

16. Section 15.120 is amended by changing the Federal Communications Commission’s mailing address to paragraph (d) to “Federal Communications Commission, 445 12th Street, S.W., Washington, D.C.”

17. Section 15.201 is amended by revising paragraph (a) to read as follows:

§ 15.201 Equipment authorization requirement.

(a) Intentional radiators operated as carrier current systems, devices operated under the provisions of §§ 15.211, 15.213, and 15.221, and devices operating below 490 kHz in which all emissions are at least 40 dB below the limits in § 15.209 shall be verified pursuant to the procedures in Subpart J of part 2 of this chapter prior to marketing.

* * * * *

18. Section 15.205 is amended by adding new paragraphs (d)(6) and (d)(7).

§ 15.205 Restricted bands of operation.

* * * * *

(d) * * *

(7) Devices operated pursuant to § 15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under § 15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in § 15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under § 15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, shall not exceed the limits specified in § 15.249(a).

* * * * *

19. Section 15.225 is revised to read as follows.

§ 15.225 Operation within the band 13.110-14.010 MHz.

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed 30 microvolts/meter at 30 meters.

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(f) In the case of radio frequency powered tags designed to operate with a device authorized under this section, the tag may be approved with the device or be considered as a separate device subject to its own authorization. Powered tags approved with a device under a single application shall be labeled with the same identification number as the device.

20. Section 15.231, paragraphs (a) and (a)(3) are revised to read as follows:

§ 15.231 Periodic operation in the band 40.66 - 40.70 MHz and above 70 MHz.

(a) The provisions of this Section are restricted to periodic operation within the band 40.66 - 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) * * *

(2) * * *

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(4) * * *

* * * * *

21. Section 15.245, paragraph (b)(1)(i) is revised to read as follows, and paragraph (b)(1)(iii) is amended by revising the first sentence to read as follows:

§ 15.245 Operation within the bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10500-10550 MHz, and 24075-24175 MHz.

* * * * *

(b) * * *

(1) * * *

(i) For the second and third harmonics of field disturbance sensors operating in the 24075-24175 MHz band and for other field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.

(ii) ***

(iii) Field disturbance sensors designed to be used in motor vehicles or aircraft must include features to prevent continuous operation unless their emissions in the restricted bands, other than the second and third harmonics from devices operating in the 24075-24175 MHz band, fully comply with the limits given in Section 15.209. * * *

* * * * *

22. Section 15.255, paragraph (b)(5) is amended by changing the word “limits” to “levels”.

Part 18 of Title 47 of the Code of Federal Regulations is amended as follows:

23. The authority citation for Part 18 continues to read as follows:

AUTHORITY: 47 U.S.C. 4, 301, 302, 303, 304, 307.

24. Section 18.103 is deleted.

25. Section 18.105 is deleted.

26. Section 18.119 is deleted.

Part 90 of Title 47 of the Code of Federal Regulations is amended as follows:

27. The authority citation for Part 90 continues to read as follows:

AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), 332(c)(7).

28. Section 90.203 is amended by revising paragraph (k) to read as follows:

Section 90.203 Certification required.

* * * * *

(k) For transmitters operating on frequencies in the 220-222 MHz band, certification will only be granted for equipment with channel bandwidths up to 5 kHz, except that certification will be granted for equipment operating on 220-222 MHz band Channels 1 through 160 (220.0025 through 220.7975/221.0025 through 221.7975), 171 through 180 (220.8525 through 220.8975/221.8525 through 221.8975), and 186 through 200 (220.9275 through 220.9975/221.9275 through 221.9975) with channel bandwidths greater than 5 kHz.

* * * * *

Part 95 of Title 47 of the Code of Federal Regulations is amended as follows:

29. The authority citation for Part 95 continues to read as follows:

AUTHORITY: Secs. 4, 303, 48 Stat. 1066, 1082 as amended, 47 U.S.C. 154, 303.

30. Section 95.1115, paragraph (b)(1) is amended by replacing the term “μm” with the term “μV/m”.

31. Section 95.1115, paragraph (b)(2) is amended by replacing the term “μm” with the term “μV/m”.

APPENDIX B: LIST OF COMMENTING PARTIES**Parties filing comments**

- | | |
|--|--|
| 1. ADEMCO Group | 47. Flash Parlani |
| 2. AdvaMed | 48. Fred C. Jensen |
| 3. Al Brittain | 49. Frederick C. Gantzer |
| 4. Albert Deshotel | 50. Frederick Patton |
| 5. Armadillo Intertie, Inc. | 51. Galen K. Watts |
| 6. ARRL, The National Association
for Amateur Radio | 52. Gap, Inc. |
| 7. Bernard K. Skoch | 53. Gary Rotter |
| 8. Brian D. Allen | 54. George Washburn |
| 9. Brian James Jarchow | 55. Harold Tate |
| 10. Britain Rothrock | 56. HID Corporation |
| 11. Bruce Perens | 57. Howard Malone |
| 12. Bryan King | 58. Hughes Network Systems, Inc. |
| 13. Central States VHF Society | 59. IBM Corporation |
| 14. Chamberlain Group, Inc. | 60. Information Technology Industry
Council |
| 15. Charles Byers | 61. Interlogix, Inc. |
| 16. Charles P. Adkins | 62. Jack Daane |
| 17. Chester Piotrowski | 63. James A. Talbot, Jr. |
| 18. Christian O. Hunt | 64. James E. Reynolds |
| 19. Christopher Howard | 65. James Edwin Whedbee |
| 20. Christopher J. Osburn | 66. James Hayes |
| 21. Cisco Systems, Inc. | 67. Jeff Ballif |
| 22. Cobra Electronics Corporation | 68. Jeff Stidham |
| 23. Comsearch | 69. Jeffrey D. Taylor |
| 24. Consumer Electronics Association | 70. Jeffrey P. LaCosse |
| 25. Cubic Corporation | 71. Jeffrey Peter Kershaw |
| 26. Dale Drake | 72. John Douglas Lamb |
| 27. Daniel Kane | 73. John L. D'Ausilio |
| 28. DataBrokers, Inc. | 74. John Paul Dooley |
| 29. David A. Merriweather | 75. John Robert Foulks |
| 30. David Batzle | 76. Johnson Controls, Inc. |
| 31. David C. Counce | 77. Jose Cadrecha |
| 32. David Clark | 78. Joseph A. Elcavage |
| 33. David Donnelly | 79. Joseph A. Naujokas |
| 34. David HM Spector | 80. Joseph H. Underwood |
| 35. David Wilkinson | 81. Joseph R. Semer |
| 36. Deerik W. Shryock | 82. Joseph S. Keer |
| 37. Dennis Swanson | 83. Kenneth P. Eckel, Jr. |
| 38. Derwood Eadie | 84. Kevin Gibson |
| 39. Donald C. Karon | 85. Kyle A. Yoksh |
| 40. Doran S. Platt III | 86. Lifeline Systems, Inc. |
| 41. Dr. Andrew E. Mossberg | 87. Linear Corporation |
| 42. Dwight B. Hill | 88. Loral Skynet |
| 43. Enalasys Corporation | 89. MagTek, Inc. |
| 44. Eric M. Funderburk | 90. Mark S. Seidler |
| 45. Eric Schmidt | 91. Martin Shinko |
| 46. Escort, Inc. and BEL, Inc. | 92. Mattel, Inc. |

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| 93. Matthew Becker | 139. Tighe W. Kuykendall |
| 94. Melvyn L. Bernstein | 140. Tom Masterson |
| 95. Michael Brooks | 141. TRP, Inc. |
| 96. Michael J. Linden | 142. Uniden America Corporation |
| 97. Michael M. Bradley | 143. United Telecom Council |
| 98. Michael Swiderski | 144. Verlin E. Reiter |
| 99. Mike Baugh | 145. Vincent F. DiMalta |
| 100. Mike Moreken | 146. VYTEK Solutions, Inc. |
| 101. Miller Edge, Inc. | 147. Wacom Technology Corp. |
| 102. MOBA Systeme | 148. Warren Bruene |
| 103. Morris Jones | 149. Warren J. Dickie |
| 104. Motorola, Inc. | 150. William A. Tynan |
| 105. National Aeronautics and Space
Administration | 151. William F. Osler |
| 106. Nicholas S. Frost | 152. William Owens |
| 107. Nickolaus E. Leggett | 153. XM Radio, Inc. |
| 108. Operator Specialty Company, Inc. | |
| 109. PanAmSat Corporation | |
| 110. Paul J. Tringas | |
| 111. Pete Myers | |
| 112. Philips Semiconductors | |
| 113. Polhemus, Inc. | |
| 114. Power Line Communications
Association | |
| 115. RADAR Members | |
| 116. Ray Todd Stevens | |
| 117. Richard Adamo | |
| 118. Richard Lourette | |
| 119. Rick Eastwood | |
| 120. Roadrunners Microwave Group | |
| 121. Robert Brown | |
| 122. Robert S. Bennett | |
| 123. Robert Winkworth | |
| 124. Safety Warning System, L.C. | |
| 125. Sanjay Kapur | |
| 126. Satellite Industry Association | |
| 127. Savi Technology, Inc. | |
| 128. SES Americom, Inc. | |
| 129. Short Range Automotive Radar
Frequency Allocation Group | |
| 130. Shure Incorporated | |
| 131. Sirius Satellite Radio, Inc. | |
| 132. Spacenet, Inc. and StarBand
Communications, Inc. | |
| 133. Steven Bryant | |
| 134. Telecommunications Industry
Association | |
| 135. Texas Instruments | |
| 136. Texas VHF-FM Society, Inc. | |
| 137. The Genie Company | |
| 138. The Whistler Group, Inc. | |

Parties filing reply comments

1. Ademco Group
2. Amateur Television Network
3. American Council of Independent Laboratories
4. ARRL, The National Association of Amateur Radio
5. Arthur T. Farrand
6. Brent D. Oots
7. Brice D. Hornblack
8. Calvin Keli Lunny
9. Charles E. Quentel, III
10. Christopher Nelson
11. Current Technologies
12. Curtis V. Locke
13. Daniel J. Serafini
14. Duane Whittingham
15. Edwin S. Toal
16. Escort Incorporated and BEL Incorporated
17. Gerald W. Murray
18. Glenn Pederson
19. Harold C. Arnold
20. Hughes Network Systems, Inc.
21. Illinois Repeater Association, Inc.
22. Indiana Repeater Council
23. Interlogix, Inc.
24. Intersil Corporation
25. James Anderson
26. John A. Weeks
27. Kevin D. Adam
28. Lloyd W. Fink
29. Martin H. Leider
30. Martin Wilcoxson
31. Matthew Hamm
32. Matthew T. Weeks
33. Michael J. Borowiec
34. Moody Law
35. Motorola, Inc.
36. Patrick T. Weeks
37. RADAR Members
38. Ray Todd Stevens
39. Retlif Testing Laboratories
40. Richard Kelly
41. Satellite Industry Association
42. Savi Technology, Inc.
43. SES Americom, Inc.
44. Seymour Hersh
45. Short Range Automotive Radar Frequency Allocation Group
46. Sirius Satellite Radio, Inc.
47. Sky A. Borgenhagen
48. Stanley Vandiver
49. Steven Handler
50. Texas Instruments
51. The Chamberlain Group, Inc.
52. Timothy Thomas Lanners
53. TRP, Inc.
54. Upper New York Repeater Council, Inc.
55. Ward Wheaton
56. Western Washington Amateur Relay Association
57. William Richards
58. XM Radio, Inc.

APPENDIX C: FINAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act (RFA),¹⁷⁰ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making and Order, Review of Part 15 and other Parts of the Commission's Rules (Notice)*.¹⁷¹ The Commission sought written public comments on the proposals in the Notice, including comment on the IRFA.¹⁷² This Final Regulatory Flexibility Analysis conforms to the RFA.¹⁷³

A. Need for, and Objectives of, the Second Report and Order and Memorandum Opinion and Order

Section 11 of the Communications Act of 1934, as amended, and Section 202(h) of the Telecommunications Act of 1996 require the Commission (1) to review biennially its regulations pertaining to telecommunications service providers and broadcast ownership; and (2) to determine whether economic competition has made those regulations no longer necessary in the public interest. The Commission is directed to modify or repeal any such regulations that it finds are no longer in the public interest.

As part of the biennial review for the year 2000, the Commission reviewed its regulations pertaining to telecommunications service providers and broadcast ownership and recommended a number of changes to those rules. While not specifically required by statute, the Commission also reviewed Parts 2, 15 and 18 as part of this process.

The Second Report and Order and Memorandum Opinion and Order makes several changes to Part 15 and other parts of the rules. Specifically, it:

- 1) Relaxes the restricted band emission limits for the second and third harmonics of low-power transmitters operating in the 24.0-24.25 GHz band.
- 2) Removes the restriction on data transmissions by remote control device because it may hinder the development of new types of devices, and the distinction between control signals and data signals is becoming increasingly blurred.
- 3) Relaxes the requirements for radio frequency identification (RFID) systems operating at 13.56 MHz to allow faster data transmission. RFID systems use a small transmitter attached to an item that transmits data identifying the item.
- 4) Streamlines the labeling process for equipment authorized under the Declaration of Conformity (DoC)

¹⁷⁰ See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

¹⁷¹ See *Notice of Proposed Rule Making and Order* in ET Docket No. 01-278, 16 FCC Rcd 18205 (2001).

¹⁷² *Id.*

¹⁷³ See 5 U.S.C. § 604. We also note that, given the deregulatory nature of our action, we may certify this action under 5 U.S.C. § 605.

procedure. As equipment becomes smaller, it becomes more difficult to include all the information currently required on the label.

- 5) Changes the authorization requirement from certification to verification (no application required) for transmitters operating below 490 kHz in which all emissions are at least 40 dB below the Part 15 limit.
- 6) Make minor corrections and updates to Part 15 and other parts of the rules.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

None.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.¹⁷⁴ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."¹⁷⁵ In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.¹⁷⁶ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.¹⁷⁷

The SBA has developed small business size standards for two pertinent Economic Census categories, "Radio and Television Broadcasting and Communications Equipment" (RTB) and "Other Communications Equipment," both of which consist of all such companies having 750 or fewer employees.¹⁷⁸ According to Census Bureau data for 1997, there were a total of 1,215 establishments in the first category, total, that had operated for the entire year.¹⁷⁹ Of this total, 1,150 had 499 or fewer

¹⁷⁴ 5 U.S.C. § 604.

¹⁷⁵ 5 U.S.C. § 601(6).

¹⁷⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

¹⁷⁷ Small Business Act, 15 U.S.C. § 632 (1996).

¹⁷⁸ 13 C.F.R. § 121.201, NAICS codes 334220, 334290.

¹⁷⁹ U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, Radio and Television and Wireless Communications Equipment Manufacturing, "Industry Statistics by Employment Size: 1997," Table 4, NAICS code 334220 (issued Aug. 1999). The number of "establishments" is a less helpful indicator of small business prevalence in this context than would be the number of "firms" or "companies," because the latter take into account the concept of common ownership or control. Any single physical business location is an establishment, and that location and others may be under the common ownership of a given firm. Thus, the numbers given in text may reflect inflated numbers of businesses in this category, including the numbers of small businesses. Census data in this context are available only for establishments.

employees, and an additional 37 establishments had 500 to 999 employees.¹⁸⁰ Consequently, we estimate that the majority of businesses in the first category are small businesses that may be affected by the rules and policies adopted herein. Concerning the second category, the data for 1997 show that there were a total of 499 establishments that operated for the entire year.¹⁸¹ Of this total, 491 had 499 or fewer employees, and additional 3 establishments had 500 to 999 employees.¹⁸² Consequently, we estimate that the majority of businesses in the second category are small businesses that may be affected by the rules and policies adopted herein.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

The Second Report and Order and Memorandum Opinion and Order streamlines the labeling requirements for equipment authorized under the Declaration of Conformity (DoC) procedure. DoC is a self-approval procedure in which the manufacturer has the equipment tested for compliance at a laboratory accredited to make the required measurements. There is an alternative procedure that allows personal computers to be assembled using compliant motherboards and power supplies with no additional testing required. Equipment that complies with the applicable rules may be marketed without an approval from the Commission, and must be labeled as specified in Part 15 of the rules. The Second Report and Order and Memorandum Opinion and Order eliminates the requirement for the phrase “For home or office use” to appear on the label for all equipment subject to DoC. In addition, it eliminates the requirement for the phrase “Tested to comply with FCC standards” to appear on the label for equipment that was tested as a complete unit, although this phrase will still be required on personal computers that were assembled from tested components. These changes will permit smaller labels on equipment. These changes will not be required, and small entities can change labels as they change and upgrade models.

The Second Report and Order and Memorandum Opinion and Order incorporates the ANSI C63.17-1998 procedure into the Part 15 of the rules by reference as the procedure the Commission will use for testing unlicensed Personal Communication Service (PCS) equipment for compliance. Our rules already provide that unlicensed PCS equipment must comply with a number of specialized technical requirements designed to prevent interference between devices. Specifically, there is a defined “spectrum etiquette” that requires unlicensed PCS transmitters to monitor the spectrum for other users before transmitting, and to use a defined transmission format. There was no procedure listed in the rules for testing unlicensed PCS equipment to these requirements. The American National Standards Institute (ANSI) C63 Committee recently completed work on a procedure for measuring unlicensed PCS equipment, which the Second Report and Order incorporates into the rules as the procedure that the Commission will use.

Part 15 referenced the ANSI C63.4-1992 procedure as the one that will be used for testing most intentional and unintentional radiators for compliance with the rules. The ANSI C63 Committee recently completed a minor revision of the ANSI C63.4-1992 procedure that contains a number of clarifications to the testing procedures. The Second Report and Order and Memorandum Opinion and Order references the new C63.4-2001 procedure in place of the older version as the procedure that manufacturers should use for compliance testing.

¹⁸⁰ *Id.*

¹⁸¹ U.S. Census Bureau, 1997 Economic Census, Industry Series: Manufacturing, Other Communications Equipment Manufacturing, “Industry Statistics by Employment Size: 1997,” Table 4, NAICS code 334290 (issued Sept. 1999).

¹⁸² *Id.*

The Second Report and Order and Memorandum Opinion and Order changes the temperature range for frequency stability measurements on transmitters used in the Family Radio Service (FRS) under Part 95 of the rules. Most transmitters used in licensed services are required to maintain their carrier frequency within a specified tolerance over a range of voltage and temperature variations to minimize the probability of interference to other users. At the time the FRS was established in 1996, a frequency stability limit was specified for transmitters, but no temperature range was specified. The Commission staff informally interpreted that measurements must be made to –20 degrees centigrade. A 1998 rule change to the equipment authorization requirements unintentionally resulted in a new requirement to measure FRS transmitters to –30 degrees centigrade. However, the staff continued requiring measurements to –20 degrees centigrade in the interest of fairness. To clarify our existing practice, the Second Report and Order and Memorandum Opinion and Order specifically requires that FRS transmitters be measured to –20 degree centigrade as the staff has been requiring since 1996.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.¹⁸³

As noted in Section D, *supra*, the changes adopted in the Second Report and Order and Memorandum Opinion and Order are deregulatory in nature, which we expect will simplify compliance and reporting requirements for all parties, particularly small entities. For example, we reduced the amount of information required on the label for products authorized through the Declaration of Conformity self-approval process. Manufacturers will be permitted to use the simplified label as soon as the rules become effective, but are not required to do so.

Report to Congress: The Commission will send a copy of the Second Report and Order and Memorandum Opinion and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A). In addition, the Commission will send a copy of the Second Report and Order and Memorandum Opinion and Order, including FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the Second Report and Order and Memorandum Opinion and Order and FRFA (or summaries thereof) will also be published in the Federal Register. *See* 5 U.S.C. § 604(b).

¹⁸³ *See* 5 U.S.C. § 603(c).